MAY, 1959 • 35¢

AMERICAN

Cinematographer

SERVING ALL FIELDS OF MOTION PICTURE PRODUCTION

The Magazine of Motion Picture Photography

BEST CINEMATOGRAPHY
Color

"Gigi"

PHOTOGRAPHED BY
JOSEPH RUTTENBERG
A.S.C.

On location in Paris, Joseph Ruttenberg (3rd from left) gives instructions to technicians before starting to shoot a scene for "Gigi."

BEST CINEMATOGRAPHY
Black-And-White

"The Defiant Ones"

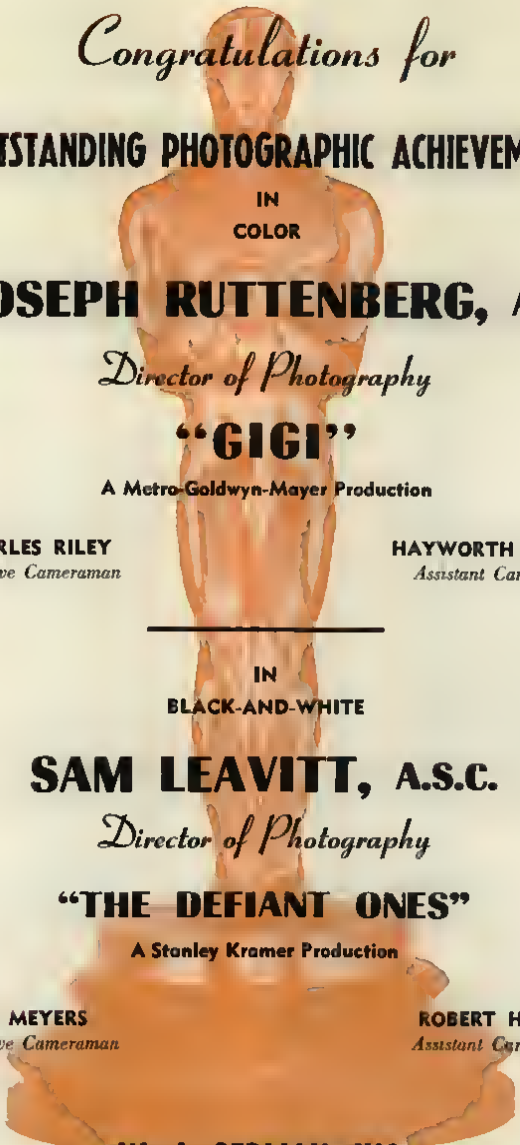
PHOTOGRAPHED BY
SAM LEAVITT
A.S.C.

Sam Leavitt (far left) anxiously watches his camera crew maneuver dolly in ram for action shot of Tony Curtis and Sidney Poitier for "The Defiant Ones."

ACADEMY AWARD WINNERS

Choosing And Using Lenses

Sound Camera For News Filming



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IN
COLOR

JOSEPH RUTTENBERG, A.S.C.

Director of Photography

"GIGI"

A Metro-Goldwyn-Mayer Production

CHARLES RILEY
Operative Cameraman

HAYWORTH BELFORD
Assistant Cameraman

IN
BLACK-AND-WHITE

SAM LEAVITT, A.S.C.

Director of Photography

"THE DEFIANT ONES"

A Stanley Kramer Production

AL MEYERS
Operative Cameraman

ROBERT HASLER
Assistant Cameraman

W. J. GERMAN, INC.

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DJATI SANTOSO TOOK IT BACK TO INDONESIA

Djati (we called him Johnny) Santoso learned a lot about fine film processing during the 18 months he studied with us here at CFI. He is a bright, capable young fellow . . soaked up a good deal of our 40 years of know how fast.

Johnny was one of some 30 foreign students who have come from all over the world to learn film processing from the master craftsmen here at CFI. He got around, studied in every department, and is now returning to the new Central Film Lab in Djakarta to take charge of their "quality control" function. And he intends to pass on the skills he learned by teaching his own people

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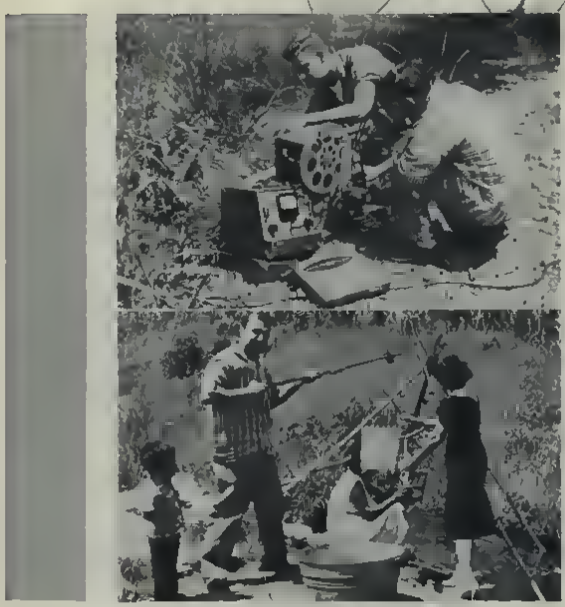
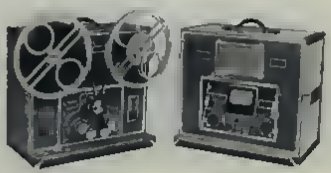


san juan (Puerto Rico)

Vigue Film Productions, Inc. with main studios in San Juan, Puerto Rico, frequently assigns its camera and sound crews to the deep, rugged areas of the country where mountains, rivers and streams provide excellent settings.

Photos at left show Vigue sound engineers using Magnasync equipment to record an interview with a native woman as she does her laundering in a mountain stream. Vigue engineers have found in Magnasync equipment the portability and reliability so essential to quality recording under the severe environmental conditions of this tropical Caribbean island . . extreme heat and humidity.

In addition to portable equipments, such as the 16mm "Type 5", Vigue also has a complete studio installation of 602 Series Magnasync recorders and dubbers. Other Magnaphonic Sound System installations in Puerto Rico are



Economic Stabilization Administration	San Juan	University of Puerto Rico	Rio Piedras
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Commonwealth Division of Community Education,	San Juan	Agricultural Extensions Service	Rio Piedras

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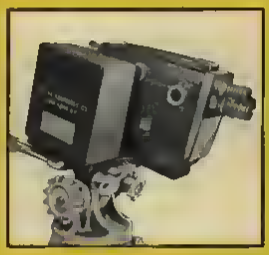

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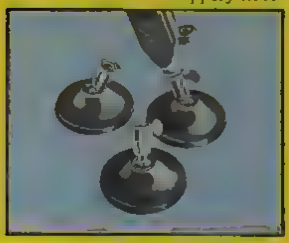

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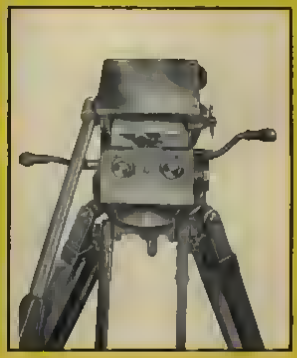

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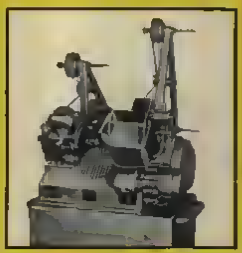

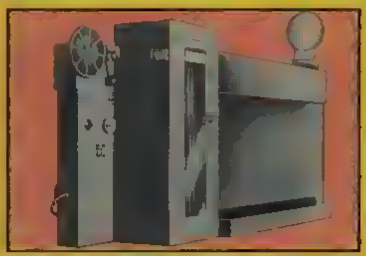

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INDUSTRY NEWS

News briefs of industry activities, products and progress

IRVING BROWNING (left) and the late veteran cinematographer Carl Louis Gregory

Irving Browning, founder of The Society of Cinema Collectors and Historians, New York, has announced that he will dispose of his famous collection of motion picture and still cameras, many which date back to 1845.

The collection includes everything from the famous fore-runner of the animated cartoon, the "Zoetrope" that was developed about 1860. Motion picture cameras include those made in U.S., France, Germany and England, including all the different models of the Pathe cine cameras, from 9½mm to 35mm. The collection boasts many interesting early-day photographic lenses, most of them in brass mounts, from the "Waterhouse stops" to neo-modern types.

Browning's collection is the result of 35 years of traveling, searching, trading and purchasing moviemaking memorabilia. "Almost a lifetime of fascinating experiences," he says. A pioneer in the motion picture industry since 1910, Mr. Browning was first an actor, a slapstick comedian, a producer-cameraman, and eventually set up business furnishing equipment to producers and exhibitors of motion pictures — a business which continues to this day at 1845 Broadway, New York City, under the name of The Camera Mart, Inc., of which Mr. Browning is president.

Leading advertisers who produce and distribute industrial films have called for better operation and organization of film festivals and awards "if they are to serve a useful purpose to companies submitting their films for judging."

These companies, represented by the Audio-Visual Committee of the Association of National Advertisers, account for the major share of the $150 million spent by industry last year for the production and distribution of sponsored films. The chairman of the committee is Wilbs H. Pratt, Jr., Film Manager, American Telephone & Telegraph Company.

The Audio-Visual Committee has issued an extensive report "Management Evaluation of Domestic Film Festivals and Awards" which offers these recommendations:

1. Special attention should be given to the problem of film categories. Films should be grouped properly according to subject, objectives, audiences and production limitations.

2. A new procedure should be established for the selection of judges. It is suggested that the panel for each category consist of judges selected for their knowledge of the category content, communications techniques, production values and research methods.

3. The information required from those who submit films for judging should include the facts that will make it possible to evaluate "Effectiveness" in meeting established objectives and "Interest" to the intended audience as well as "Production" values.

4. Attention should be given to the problems of publicity in connection with film festivals and awards so that a maximum of desirable by-products will accrue to sponsors and producers.

"The film festival, if it could be properly organized, would be an effective instrument for improvement in the 16mm industrial motion picture field," the A.N.A. Committee has stated.

• • •

Byron, Inc., Washington, D.C., film laboratory, has announced the appoint-

Continued on page 316

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AMERICAN
Cinematographer

May, 1959 • Vol. 40, No. 5

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ON THE COVER

TWO SCENES showing this year's Oscar-winning cinematographers directing photography for the pictures for which they won Academy Awards last month. Sam Leavitt, ASC, for "The Defiant Ones," and Joseph Ruttenberg, ASC, for "Gigi."

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Most of the location shooting problems were solved in careful pre-production planning.

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Award is first Oscar for Leavitt, fourth for Ruttenberg.

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Actually 3 new features make this camera one of the best available for professional film production

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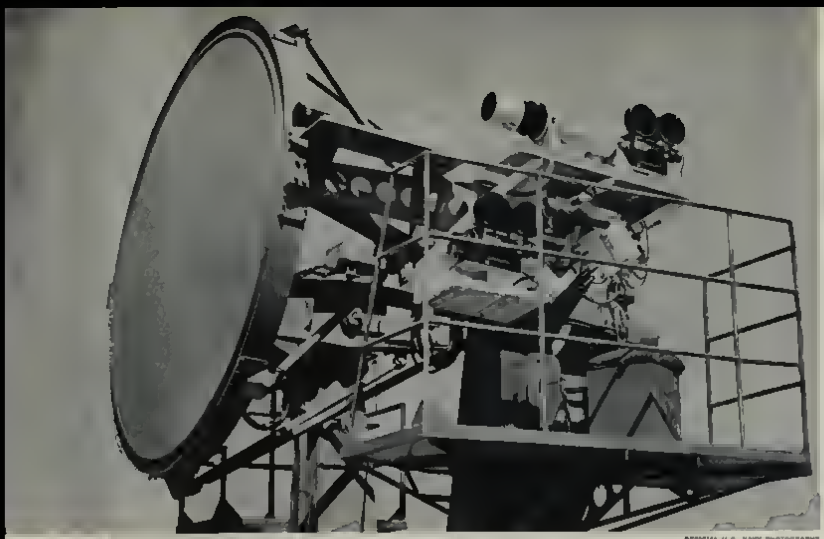

Mitchell Camera installation for radar tracking studies.

OFFICIAL U.S. NAVY PHOTOGRAPHS

HOW MITCHELL CAMERAS SUPPLY VARIED DATA IN ROCKETS AND MISSILES DEVELOPMENT

- Exact Pin Registration During Film Expasure
- Event Time ta 1 Millisecand

Data dial instrumentation by Mitchell camera.

Extensive testing instruments incorporating Mitchell 16mm, 35mm and 70mm cameras provide key data at the U.S. Naval Ordnance Test Station at China Lake, Calif., one of the primary weapon development centers of the Navy's Bureau of Ordnance.

Fifty Mitchell 35mm cameras are used on radars, tracking camera mounts and fixed tripods to record missile and rocket development. Camera motors allow synchronous as well as in-phase operation of several cameras covering a test... important in film assessing. Eight 16mm Mitchell cameras are used for pictorial coverage of tests.

One metric photographic group shoots as much as 20,000 feet of 35mm film in one day. Other Mitchell cameras record underwater, engineering and aviation tests at this ordnance center.

For information on Mitchell cameras, write describing your requirements.

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85% Of Professional Motion Pictures Shown Throughout The World Are Filmed With Mitchell Cameras

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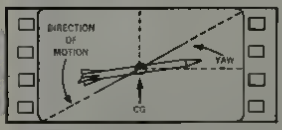
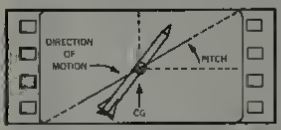
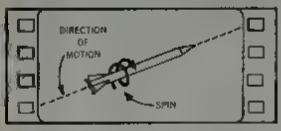


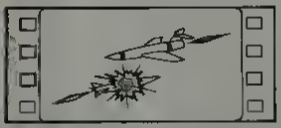
Yaw—Side-to-side motion of missile.



Pitch—Up-and-down motion of missile.

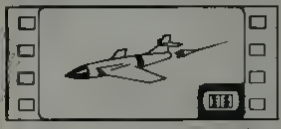


Roll—Turning motion of missile.



Miss Distance—Gap between missile and target at point of interception

Flight Time—A series of lines on film, timed to accuracy of 1 millisecond.



Position Data—Target location with azimuth and elevation readings

Pictorial Record—Record of all visible actions during test.

Separation Data—High speed separation actions for detailed study.

PHOTOGRAPHIC ASSIGNMENTS

WHAT THE INDUSTRY'S CAMERAMEN WERE SHOOTING LAST MONTH

ASTERISKS INDICATE TELEVISION FILMS

AMERICAN NATIONAL

CHARLES VAN ENGER, ASC, Bon Hoffman, Rough Riders"* (Ziv-TV) with Kent Taylor

BON HOFFMAN, CURT FETTERS, "Bat Masterson"* (Ziv-TV) with Gene Barry

RICHARD RAWLINGS, "MacKenzie Raiders"* (Ziv-TV) with Richard Carlson

MONROE ASKINS, "Bold Venture"* (Ziv-TV) with Dane Clark.

CALIFORNIA STUDIOS

HENRY SHARP, ASC, Commercials* (Roland Reed Prods.)

FLEET SOUTHCOTT, Commercials* (Roland Reed Prods.)

CASCADE PICTURES

ROY SEAWRIGHT Commercials*

COLUMBIA

FRED GATELY, ASC, "Father Knows Best"* (Screen Gems) with Robert Young and Jane Wyatt Peter Tewksbury, director.

GERT ANDERSON, ASC, "Donna Reed Show"* (Screen Gems) with Donna Reed Oscar Rudolph, director

GILBERT WARRENTON, ASC, "The Legend of Tom Dooley" (Shpetner Prods.) with Michael Landon and Jo Morrow Ted Post, director

J. BURGI CONTNER, ASC, "Naked City"* (shooting in N.Y.)

TED MOORE, "Adamson in Africa" (C'Scope & Color; Warwick Prod.- shooting in Africa) with Robart Taylor. Richard Thorpe, director

WILL CLINE, ASC, "Battle of the Coral Sea" (Morningside Picts. Corp) with Cliff Robertson and Gia Scala Paul Wendkos, director

SAM LEAVITT, ASC, Anatomy of a Murder (C'Scope; Carlyle Prods.; shooting in Michigan) with James Stewart and Lee Remick Otto Preminger, director

FRED JACKMAN, JR. "The Fat Man"* (Screen Gems) with Robert Middleton. Albert Lewis, director

BURNETT GUFFEY ASC, "Dog Face"* (Screen Gems, Pilot). Sam Fuller, director.

IRVING LIPPMAN, "Underworld"* (Screen Gems; Pilot). Russell Rouse, director.

CHARLES LAWTON, ASC, Commercials* (Screen Gems).

GEORGES PERINAL, "Once More, with Feeling" (Stanley Donen Films, shooting in Paris) with Yul Brynner and Kay Kendall Stanley Donen, director

BENITZ, "Ten Years a Counterspy" (RD DR Corp., shooting in Berlin) with Ernest Borgnine and Kerwin Mathews. Andre de Toth, director.

DISNEY STUDIOS

WILLIAM SNYDER, ASC, "Toby Tyler (Technicolor) with Kevin Corcoran and Henry Calvin Charles Barton, director.

NILMCRAFT STUDIOS

VIRGIL MILLER, ASC, "You Bet Your Life"* with Groucho Marx Robert Dwan, director

FOX WESTERN AVENUE

GUY ROE, ASC, "Wanted Dead or Alive"* (Four Star Prods.) with Steve McQueen; "Trackdown"* (Four Star Prods.) with Robert Culp

GEORGE DISKANT, A.S.C., JOSEPH BIROC, A.S.C. "Dick Powell's Zane Grey Theatre"* (Four Star Prods.) with Dick Powell

GEORGE DISKANT A.S.C., CHAS BURKE, "The Rifleman"* (Four Star Prods.) with Chuck Connors.

JOSEPH BIROC, ASC, CHARLES BURKE, "Richard Diamond"* (Four Star Prods.) with David Janssen

GEORGE DISKANT, ASC, JOSEPH BIROC, ASC, "The David Niven Show"* (Four Star Prods.) with David Niven

CHARLES BURKE, "Black Saddle"* (Four Star Prods.) with Peter Breck

GENERAL SERVICE

HARRY WILD, ASC, "The Bob Cummings Show"* (Laurmac Prods.) with Bob Cummings and Rosemary DeCamp Bob Cummings, director.

NEAL BECKNER, "The Adventures of Ozzie & Harriet"* (Stage 5 Prods.) with the Nelsons. Ozzie Nelson, director

ARCH DALZELL, "Flight"* (McCadden Prods.)

FRANK PHILLIPS, "Border Patrol"* (Gallu Prods.) with Richard Webb Jean Yarbrough, director.

INDEPENDENT

FRANK PLANER, ASC, "The Unforgiven" (Panavision & Eastman color; Hecht Hill-Lancaster for UA- shooting in Mexico) with Burt Lancaster and Audrey Hepburn John Huston, director

JOSEPH BRUN ASC, "Odds Against Tomorrow" (Harbel Prod U.A. release, shooting in N.Y.) with Harry Belafonte and Robert Ryan. Robert Wise, producer-director

MAURY GERTSMAN, ASC, "Three Came to Kill" (Premium Pictures for UA) with Cameron Mitchell and Elaine Edwards. Edw. L. Cahn, director

TED PAHLE, ASC 'Strictly Business"* (Samson Prods. shooting in Philadelphia) with John Dutra and Shirley Ballard Lew Jacobs, director

JAMES SEELEY, ASC, Missile Test Project FCA Atlantic Missile Range in Cape Canaveral, Fla.

KEYWEST STUDIOS

WALTER STRENGE ASC, Series of religious pictures (Family Films). Eddie Dew and William Claxton directors.

KTTV STUDIOS

JACK MARTA, "Rescue 8"* (Cinefilm Inc.) with Jim Davis and Lang Jeffries William Beaudine, director

METRO-GOLDWYN-MAYER

LESTER SHORR, ASC, "Col. Humphrey J. Flack"* (Jody Pan Prods.) with Alan Mowbray and Frank Jenks.

WILLIAM SPENCER, "The Thin Man"* with Peter Lawford and Phyllis Kirk

ROBERT SURTEES, ASC, and ROBERT BRONNER, ASC, "It started with a Kiss" (C'Scope & Color) with Glenn Ford and Debbie Reynolds George Marshall, director

DALE DEVERMAN, "One Step Beyond"*, John Newland, director.

JOHN NICHOLAUS "Rawhide"* (CBS-TV) with Eric Fleming and Clint Eastwood.

HARKNESS SMITH, "Best of the Post"* (Robert Enders Prods.)

WILLIAM MARGULIES, "The Lawless Years"* (Jack Chertok Prods.) with James Gregory and Robert Karnes Allen Miner, director- Philip Marlowe"* (Jack Chertok Prods.) with Phil Carey, Irvin Kershner director

PAUL VOGEL, ASC, "Tarzan, the Ape Man" with Dennis Miller and Joanna Barnes. Joseph Newman, director.

JACK COLLINS "Girls' Town" with Mamie Van Doren and Mel Tormé. Charles Haas, director

MOTION PICTURE CENTER

ROBERT DE GRASSE, ASC, "Danny Thomas Show"* (Desilu Prods.) with Danny Thomas Sheldon Leonard, director.

SID HICKOX, ASC, "December Bride"* (Desilu Prods.) with Spring Byington and Frances Rafferty Frederick DeCordova director.

CHARLES STRAUMER "Westinghouse Desilu Playhouse"* (Desilu Prods.).

ROBERT HAUSEN "Derringer"* (Desilu Prods.) with Jack Mahoney

PARAMOUNT

CHARLES LANG, JR., ASC, "One-Eyed Jacks" (VVision & Color; Pennebaker Prods.) with Marlon Brando and Karl Malden Marlon Brando, director

HAROLD LIPSTEIN, ASC, "Heller with a Gun" with Sophia Loren and Steve Forrest. George Cukor, director

TED SCAIFE, "Tarzan's Greatest Adventure" (Shooting in Africa) with Gordon Scott and Sara Shane John Guillerman, director.

Continued on Page 316

BROOKS CAMERAS
The House of Fomous Brond Nomes

Prices subject to change without notice

COLORTRAN JUNIOR KIT

Here, in one handy peckage, you have the equivelent il lumination ol 3000 watts ol current from a 15 ampere fuse! Compact kit lits any car, contains everything you'll need for perfect lighting a studio in a suitcase! Includes 2 Groverlite heads with 6 foot aluminum stands All units have barn doors and diffusion stots for light control $202 50

SENIOR KIT—produces equivalent ol 5000 watts illumination from a 30 ampere fuse $276 50

SPOT KIT—Contains 3 spotlights with a 8road or Junior plus 4 stands Snoots ond diffusion for spots $313 25

NEW ARRIFLEX 16

The only 16mm camera providing through-the-lens focusing and viewing during exposure, electric motor drive Matte box cables $1725 00

16mm Xenon f/1.9 tens $170.00

25mm Xenon f/1 5 tens $170 00

75mm Xenon f/2 tens $200 00

Zoomar lens 1" to 3" f/2 8 for Arriflex $579 00

Arriflex, Model 16 Tripod $175 00

Same as above plug built-in buckle switch ond motor cable lock $1795 00

MAGNASYNC TYPE 15 RECORDERS

Here is a complete top-quality sound system, with playback monitor amplifier, loudspeaker and recorder, all built into one compact package

- Easy - to - read footage counter
- Direct coupled, high resistance rotor torque motors
- Simplified single-switch for all motor control functions
- Simultaneous film monitor through separate play head
- Will accommodate standard 1200-foot film reels $1,385 00

MAGNASYNC X-400 RECORDER

A complete sound system that weighs only 27 lbs.! Features high gain "long-shot" microphone channel. Dialog equalization for "speech-music" selection Self-contained playback system for "film-direct" monitor $985 00

Magnasync M-8 speaker, amplifier, and accessory case $110 00

4-position high level mixing w/4½" Vumeter mounted in case $395 00

New single compact unit with playback speaker $1385 00

BOLEX H-16 REFLEX

Through the tens viewing and focusing while shooting

BOLEX 16mm LENSES

Pan Cinor 85—w/R F From 17.5 to 85mm—F2 ..... $420.00

Pan Cinor f/2 4 lens, focat lengths from 17½mm to 70mm $209 50

Pan Cinor 100 f/3 4 lens, focal lengths from 25mm to 100mm $329.50

Switer 10mm w w f/1 6 FM 8" to inf "C" mount Visifocus $149 50

Switar 16mm w a f/1 8 FM 8" to inf "C" mount Visifocus $99 50

Switar 25mm 1" f/1 5 FM 1½' to inf Visifocus $115 00

Yvar 100mm 4" f/3 3 tele 4-power magnification Focuses 8' to inf $89 50

The movie camera that gives you professional quality from ing your eyes see exactly what your lens does Precision triple turret camera Variable speeds with fast Lytar f/1 8 lens $300 00

Yvar 18mm w. a f/2 8 Focuses 1' to inf "C" mount Visifocus $59 50

Pizar 26mm 1" f/1 9 Focuses 1½' to inf "C" mount Visifocus $67 50

Yver 75mm 3" f/2 8 tele Focuses 5' to inf "C" mount. Visifocus $89 50

Switar 25mm 1" f/1 4 Focuses 1½' to inf "C" mount $102 00

Switar f/1.4 50mm 2" tele lens Ultra-high speed Focuses 3' to inf $129 50

Yver 150mm 6" f/4 tele tens 7½" length FM 13' to inf with case. $145 75

PRECISION SOUND READERS

Simple threading potished stabilizer drum with needle bearings, with a surface which cannot damage film Film rollers machined to conform with SMPTE standards, and equipped with oilless bearings . precision ground shafts dimensions 6" x 6" x 7½"

Amplifier 117 volts—60 cycle—A.C Power output—4 watts Heavy duty Alnico V speaker . . safety fused . prefocused socket . . . pilot light . 6 ft. heavy duty cord.

Optical Model 600—16mm and 35mm $185 00

Magnetic Model 700—16mm, 17 5mm 35mm and ¼ Inch $198 00

Optical-Magnetic Model 800—16mm 35mm and ¼ Inch $259 50

Optical Sound Reader Model 650 RL—16mm $109 50

AURICON CINE-VOICE II

16mm sound - on - film movie camera with professional heavy-duty 3-lens turret Operates from house current or car battery Available in a choice of models to suit a varrety of filming requirements $795 00

CINE-VOICE I

Used $495 00

AURICON PRO-600

16mm optical-sound on-film, self-blimped, sync motor drive for single or double-system recording, Electromatic take - up, film-flow without friction clutches or belts Various combinations of accessories available $1456.25

AURICON "SUPER-1200"

16mm sound-on-film camera (self-blimped) with 3-lens turret for "C" mount lenses 1200 ft capacity for 33 minutes recording time $4149.00

AURICON PRO 200 Was $1,495 00

Now — Used $995 00

SUPER 1200

AURICON PAN-TILT professional tripod, wgt 27 lbs $408 25

West's Largest Selection • Budget Terms Available • Write In For A Complete List Of Professional Equipment

BROOKS CAMERAS

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FREE!

120 Page Photo Equipment Reference Book

Geared To Commercial and Industrial Cine Uses

Now have at your fingertips B & J's new 48th Anniversary issue at no cost! Its crammed with information illustrations and specifics about advanced and current photographic equipment for Industry. A listing of the world's largest in stock selection of Lenses, available custom lens laboratory facilities, custom built equipment for unique applications plus hundreds of America's standard photo tools—many available only thru Burke & James dealers!

- CAMERAS—from Sub-Miniature to HUGE CUSTOM BUILT
- DEVELOPING EQUIPMENT
- DRYERS
- ENLARGERS SOLAR
- STROBE
- LENSES—From "Peenie" To Big Barthes
- LIGHTING
- CAMERA BACKS
- PRINTERS
- PROCESSING—Pako, Leedal, etc
- PROJECTORS
- SLIDE EQUIP
- STAINLESS STEEL
- TIMERS

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321 S. Wabash Chicago 4, Illinois

Consider . . .

COLBURN COLOR POSITIVES

(Eastman Internegative-Color Print)

for your next 16mm release

protect your original
enjoy faster delivery
finer color corrections
uniform prints
10 or 1000 at lower costs

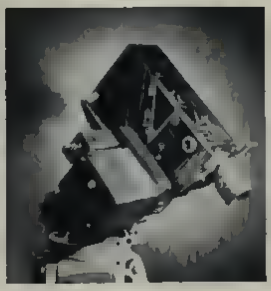
GEO. W. COLBURN LABORATORY, INC.

164 No. Wacker Drive, Chicago 6
Telephone DEarborn 2 6286

Demonstration Reel available on request

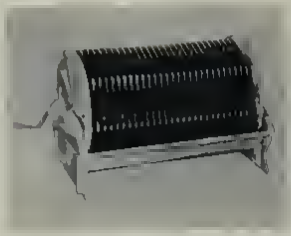
WHAT'S NEW

in equipment, accessories, services



Stop-Motion Motor

Specifically designed and engineered as an accessory for the Cine Kodak-Special camera is the new Ceco 110-volt synchronous stop motion motor announced by Camera Equipment Co., New York, N. Y. Exposure interval is ½ second, and motor operates both forward and reverse. Unit is mounted within a sturdy metal case finished in grey crackle, and with a frame counter conveniently mounted on top. According to Ceco, it is simple to mount on the camera without the need for special tools



Film Processor

Designed for processing Ansco chrome, Ektachrome and black-and-white 16mm or 8mm films, this new unbreakable Styrene processing unit, tradenamed the Superior Colorcel, consists of reel and solution trough, which are inert to all processing chemicals. Processing requires less than a gallon of solution. Film capacity is 110-ft. Processing reel also serves as drying rack, eliminating need for extra reel. Manufacturer is Superior Bulk Film Co., 442 No. Wells Street, Chicago 10, Ill. List price is $32.50, F.O.B. Chicago.

Junior Trombone

Mole-Richardson Co., 937 No. Sycamore, Hollywood 38, Calif., announces its new Type 1731 Junior Trombone set-lighting accessory for film or TV production. Adjustable arm permits unit to be mounted on top of set walls ranging in thickness from 2" to 12". A Junior lamp may be hung either at top or at bottom in socket provided at the end of the adjustable arm. Latter may be swung right or left and locked in place with set-screw. Extensions provide for hanging lamp from 21" to 61" outward from set wall. Soft rubber buffer prevents damage to wall. Net weight, 11 lbs.

Magnetic Tape/Film Degausser

Magnasync Mfg. Co., Ltd., 5546 Satsuma Ave., Hollywood, Calif., announces a new semi-automatic turn-

Continued on Page 272

PROFESSIONAL JUNIOR*—product of experience

and friend to thousands of cameramen

All tripods have one thing in common—they rest on three legs. But there the comparison ends.

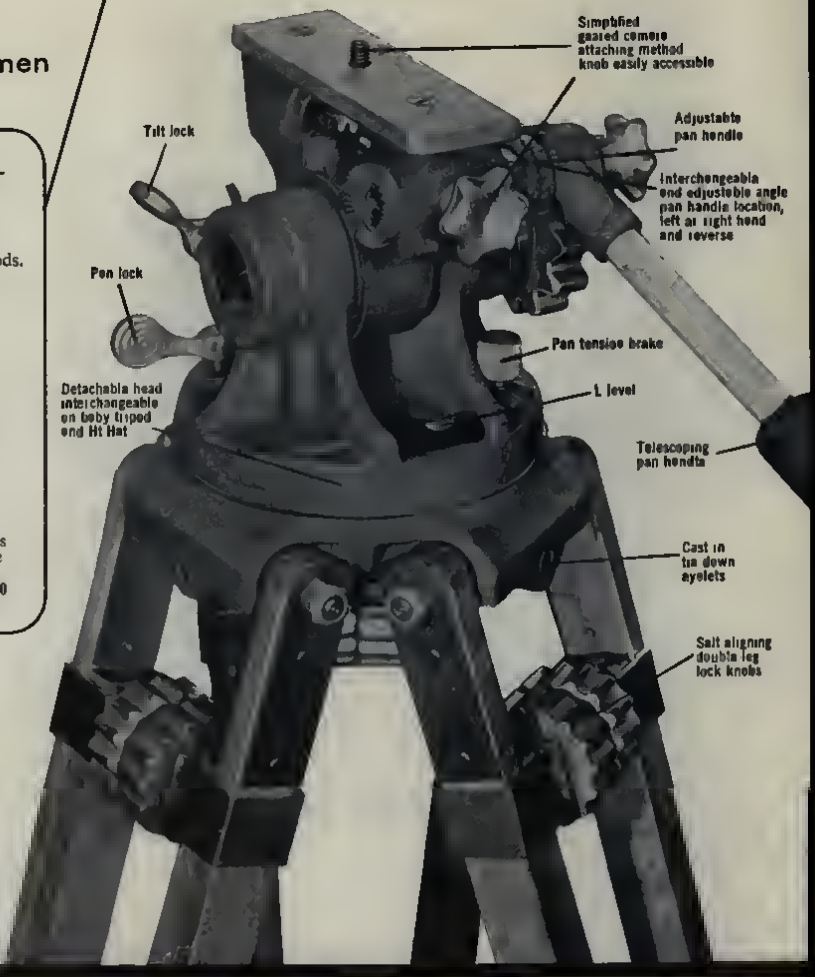
Because PRO JUNIOR towers like the Empire State Building over ordinary tripods.

Because PRO JUNIOR is the world's most *convenient* tripod with the world's finest features, including

- Simplified camera attaching method.
- Adjusting telescoping pan handle with adjustable angle
- Sockets for left, right or reverse till
- Special pan tension adjusting knob, independent of pan lock
- Cast in tie-down eyelets
- Self adjusting double leg locking knobs.
- IDEAL FOR MOTION PICTURE AND TV VIDICON CAMERAS

And still the price is unchanged, which makes PRO JUNIOR the world's best tripod value Pros go for PRO JUNIOR See it today

$150.00

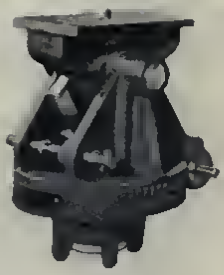

Simplified geared camera attaching method knob easily accessible
Tilt lock
Adjustable pan handle
Interchangeable and adjustable angle pan handle location, left or right hand and reverse
Pan lock
Pan tension brake
Detachable head interchangeable on baby tripod and Hi Hat
L level
Telescoping pan handle
Cast in tie down eyelets
Self aligning double leg lock knobs

CECO Professional Jr. Hi-Hat

An adapter for extremely low-mount setups; also used for title stands and permanent mountings. Handles either friction or geared-drive tripod heads **$22.00**

CECO Professional Jr. Adjustable Wooden Baby Tripod

Accepts all Pro Jr Tripod Heads. Has substantial shoe and spur. Measures 26" extended from floor to flange, 18" collapsed. Weight 7 lbs **$75.00**



PROFESSIONAL JR. Geared Head

Used on Professional Jr. standard tripod Crank handles control pan and tilt action.
$175.00 Head only.
$225.00 Complete with tripod.

FRANK C. ZUCKER

CAMERA EQUIPMENT CO., INC.

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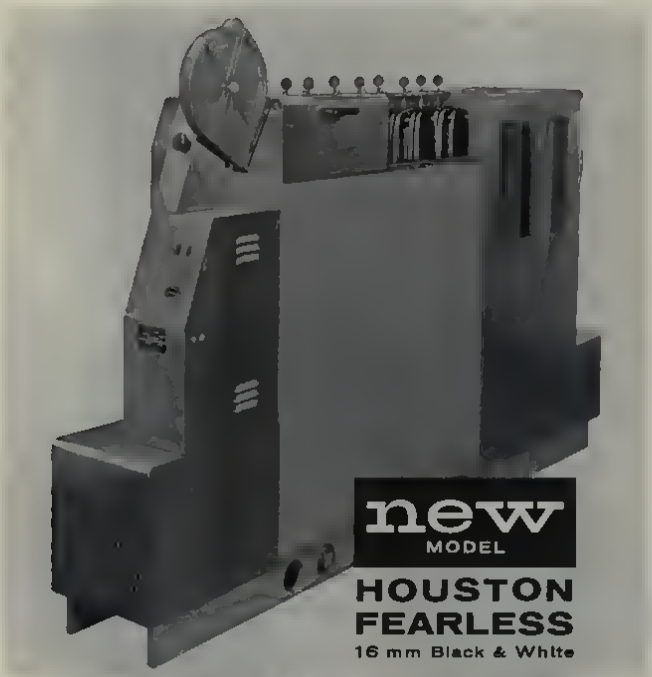
DEPENDABLE PROCESSOR AT A LOW PRICE!



LABMASTER

Without a doubt the greatest processor value ever offered! Simplified design and volume assembly-line production make it possible to price the Labmaster far lower than any machine of comparable high quality. In comparing cost, remember the Labmaster price includes refrigeration system, air compressor, turbulation pumps and film magazines. It is complete, ready to operate

- All tanks, stainless steel
- Neg-Pos, Reversal & Microfilm models
- Modular construction Reversal section easily added to neg pos model at a later date
- Fully automatic, easy operation.
- Exclusive H-F clutch drive eliminates film breakage
- Built-in refrigeration maintains proper solution temperatures
- Operates up to 40 f p m
- Turbulation pumps on developer tank
- Built-in air compressor
- Variable heat and filtered air in dry box

(Neg.-Pos Model) COMPLETE **$4,175** *Nothing else to buy*

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Please send catalogs and prices on
☐ B&W Labmaster ☐ Color Labmaster
☐ Camera heads ☐ Tripods ☐ Camera pedestals
☐ Dollies ☐ Remote control heads
Name _____
Firm _____
Address _____
City _____ Zone _____ State _____

WHAT'S NEW

Continued from Page 270

table-type degausser which features a pre-determined 20-second timed cycle. The push-button controlled motor-driven unit insures fast and complete bulk erasure of magnetic films or tapes of all sizes. The Model A-937 illustrated is $159.50. Other models are priced at $119.50 and $69.50.

Tripod Head Conversion

Cinekad Engineering Co., 763 10th Ave., New York 19, N. Y., announces a custom conversion adaptable to the Pro-Jr., F-B and S.O.S. tripod friction heads which converts them to a spring-balanced type head. Conversion also provides better counter-balanced control when used with any 16mm camera—returning the camera to neutral position when tripod head is released. Two separate compression springs are provided, each accommodating a different camera weight range.

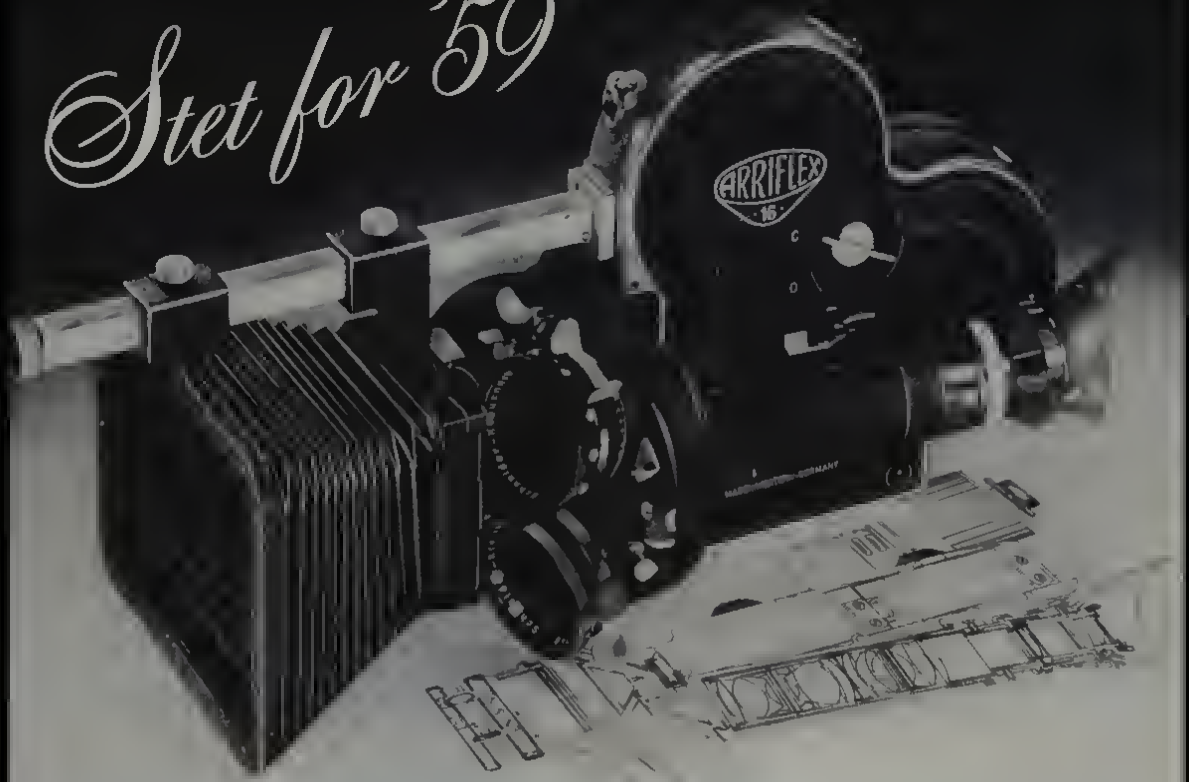
Gyropod

Birns & Sawyer, 6424 Santa Monica Blvd., Hollywood 38, Calif., offer a heavy-duty gimbal-action tripod for use in photographing action at sea or on other rough water where a horizon-steady camera is essential. Tradenamed Gyropod, unit will maintain constant horizon in rough seas up to 30° incline. Screw-on threaded head adapters accommodate either Mitchell or Pro-Jr. type heads for 16mm cameras. List price is $945.00.

Precision Laboratories

Precision Labs., Brooklyn, N. Y., is now operating as a division of Cine Equipment Corporation, as of April 1st. ■

Stet for '59*

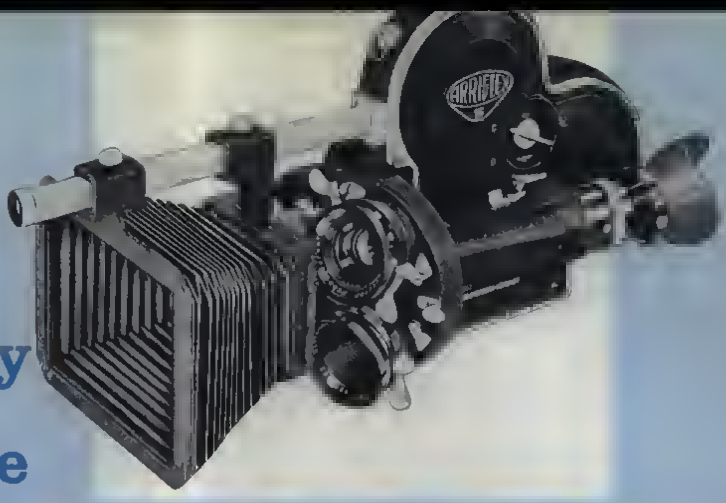


* This 4 page advertisement was first published more than 2 years ago. Except for the addition of new Arriflex customers (listed on the back page) we are repeating it without change.

The many hundreds of new purchases of the Arriflex 16 by industry, government, military services, and educational institutions are proof of the convincing superiority of this outstanding camera as factually stated in this insert. And the partial list of satisfied users is our most convincing recommendation . . . therefore "Stet for '59".

why the ARRIFLEX 16 is the most desirable professional 16mm camera

**Proofreaders' notation indicating "no change" or "repeat".*



why the

ARRIFLEX 16

is the most desirable professional 16mm camera

Because of its features

TRUE MIRROR REFLEX SHUTTER
— not a beam splitting device — passes 100% of the light to film and viewing system intermittently.

FINDER SHOWS BRIGHT IMAGE THROUGH TAKING LENS
— even in poor light. 10X magnification; no parallax; no misframing; accurate, easy follow-focus.

REGISTRATION PIN IN PRECISION FILM GATE
— with balanced rear pressure pad, side pressure rail, cross stages around aperture. This means rock-steady pictures, no film "breathing," 35mm-like film quality.

THREE LENS DIVERGENT TURRET
— lets you use wide angle lens to 300mm telephoto without physical or optical interference.

INSTANT-CHANGE LENS MOUNT
— with large-flange surface insures positive seating and precise flange focus and alignment.

LARGEST CHOICE OF LENSES
— by famous makers. From 11.5mm extreme wide angle to longest telephoto.

VARIABLE SPEED MOTOR
— electrically driven by light, compact, rechargeable batteries. Motor instantly interchangeable for other types — Governor Controlled, Synchronous and Animation.

TACHOMETER, FOOTAGE AND FRAME COUNTERS

HAND-HELD FILMING
— all these features in a camera so light (only 6½ lbs), so formfitting, with its ingenious Contour Hand Grip, that steady, hand-held filming is easy.

Because of its versatility

It is a hand camera for newsreel and fast action filming

It is a studio camera when you add the 400′ Magazine and the Synchronous Motor.

It is a sound camera when you put it in the Arriflex Blimp

It is also an animation camera, a scientific laboratory camera, a medical camera, a cine-micrographic camera.

You can start with the hand camera, and as your requirements demand, add the special purpose accessories, and yet be able to convert it back to a hand camera in a few seconds — and without the use of even a screwdriver

Because it is rugged and reliable

Here is a precision camera that can "take a beating" and still deliver the goods.

For instance: Al Milotte, ace Disney wild-life photographer, shot over 90,000 feet for "African Lion" with one Arriflex 16, in the rough tropics.

Disney cameramen found the Arriflex 16 most reliable during the Navy North Pole Expedition in 1954.

Now eight Arriflex 16's are at the South Pole with Disney Disney Studios has already purchased more than 30 Arriflex 16 cameras—so far.

Because of factory service in the U.S.

A modern, fully equipped service center is maintained in New York City, manned by factory trained technicians. A complete stock of Arriflex parts is always on hand. Because Arriflex owners derive their income through the use of their cameras, service is handled on the promptest possible basis—in most instances within 24 hours.

Because of its reasonable price

You cannot buy another registration-pin 16mm camera unless you pay more than twice as much. If you "doctor up" an ordinary 16mm camera with accessories needed for professional use, it will cost you more than the Arriflex and you still won't have a professional camera, not to talk about the many exclusive Arriflex features.

Arriflex equipment is available on convenient long-term leasing plan with purchase option.

ARRIFLEX

Division of

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PHOTO CORPORATION

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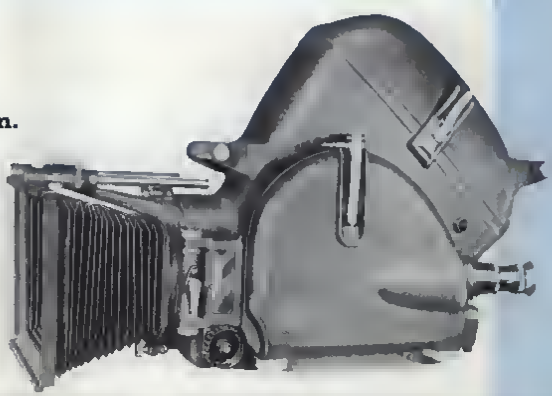

Hundreds of satisfied Arriflex customers throughout the nation are our best recommendation. Many companies are members of our "more than 6 Arriflexes" Club. Here is only a partial list of Arriflex users

ACF Industries, Inc.
Aerophysics Dev. Corp
African Leprosy Society
Agricultural Extension Service
Ames Aero LaBoratory
American Foundation for the Study of Man
Argonne National Laboratory
Mark Armistead
Ara, Inc.
Astronaut, Inc.
Atomics International
Baptist Foreign Mission Board
BarBer-Greene Company
Boeing Airplane Company
Business Films
Bendix Aviation-Eclipse Pioneer Div.
California State Polytechnic College
Cal-Nat Productions, Inc.
Calvin Company
Dr Ramon Castroviejo
Cavalcade Productions, Inc.
Chase Manhattan Bank
Chrysler Corporation
CAA (Photographic Sec.)
Cinefamics, Inc
Coleman Productions
Colonial Williamsburg, Inc.
Commonwealth of Pennsylvania
Continental Productions Inc
Cook Electrical Research
Craven Film Corp
Diamond Ordnance Freeze Lab.
Walt Disney Productions
Dock Aircraft
Doane Productions
Dow Corning Corporation
Dumont Television Network
E I DuPont de Nemours
EB Films Inc
Educator Films
Encyclopaedia Britannica Films
F-M Film Editing Service
Farrell and Gage Films Inc.
Florida Cypress Gardens
Florida State University
Henry Ford Hospital
Gallu Productions
General Electric Co-AGT Div
General Electric Co-PP Div
Grumman Aircraft Engr. Corporation
Hamilton Wright Organization
Harvard Productions Inc.
Hospital for Special Surgery
Hughes Tool Co.
International Business Machines
International Harvester Company
Jamieson Machine Co.
Kansas University Medical Center
Kelly-Zehrndt-Kelly Inc
Kent Films
Kimberly Clark Corporation
KPLC-TV-Lake Charles, La.
Kraft Foods Co.
Lear, Inc.
Lockheed Aircraft Corp-Calif. Div.
Lockheed Missile Systems
Lytha Engr and Mfg Co.
Manufacturing Experiments Div.
Marathon TV Newsreel
Glenn M Martin Co.
Marquette Univ. School of Medicine
McCullough Motors
Merit Prod. of California
Methodist Hospital
Michigan State University
Midwest Film Studios
Mode Art Pictures Inc
Moody Institute of Science
Motion Picture Production
MPO Productions
Museum of Science
National Bureau of Standards
National Inst of Health
(Photographic Sec.)
Nationwide Insurance
Natural History Museum, N Y.C
Nature Close-Ups
New Holland Machinery Company
New York University
Newington Home for Crippled Children
North American Aviation
No. Co Wildlife Resource Comm
Ogilvy, Benson and Mather
Pan American Airways
Pilot Productions Inc.
Platt Productions
Producers' Film Studios
RAD, Avco Manufacturing Corp.
RCA International
Remington Rand
Reorganized Church of Jesus Christ
R J Reynolds Tobacco Co.
Rolab Photo Science Lab.
Rocketdyne, Inc
Santa Fe Railroad
St. Luke's-Texas C and M Hospital
Peter J. Schweitzer Inc.
Charles Sciarba
Screencraft Enterprises
Shell Development Corp.
Signal Films
Sleeping Giant Films
Southeastern Films
Southwest Film Industries
Wayne Steffner Productions
System Development Corporation
Telecine Film Studios Inc.
Time, Inc
Trans World Airlines
Trinity Films Inc.
Union Pacific Railroad Company
University of California
University of Chicago
University of Indiana
University of Miami
University of Michigan
University of Minnesota
University of Texas
University of Wisconsin
U S. Army Redstone Arsenal Alabama
U.S. Department of Agriculture
U.S. Borax and Chemical Corp
U.S. Public Health-Lawsen Hospital
U S Senate Recording Studio
U.S Steel Corporation
Vanard Organization
Medical College of Virginia
Virginia Dept. of Education
Virginia Polytechnic Institute
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Weston Woods Studios
Western Electric Company
WGBH TV, Boston, Mass.
WHDH, Inc -Boston, Mass.
Wisconsin Conservation Dept.

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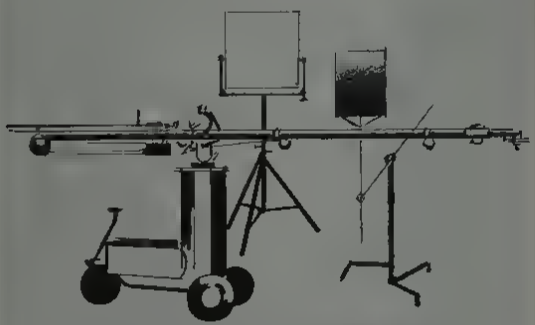
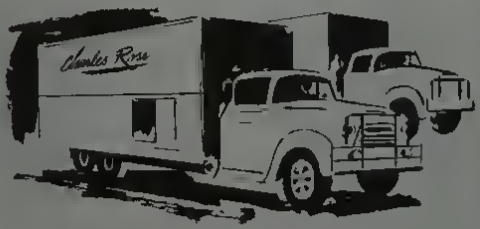


GRIP EQUIPMENT



GENERATORS

Brutes
Molarcs
Teners
Seniors
Juniors
Cones
ColorTrans
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Boxes
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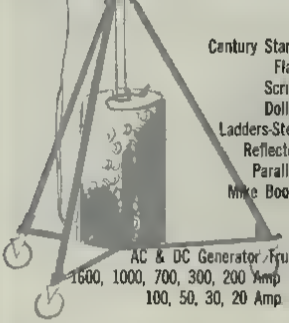
Charles Ross

LIGHTING THE MOTION PICTURE INDUSTRY SINCE 1921



Century Stands
Flags
Scrims
Dollies
Ladders-Steps
Reflectors
Parallels
Mike Booms

AC & DC Generator Trucks
1600, 1000, 700, 300, 200 Amp DC
100, 50, 30, 20 Amp AC

RENTALS
SALES SERVICE
Send for a schedule of rental rates.

Charles Ross INC.

333 West 52nd Street, New York City, Circle 6-5470

NEW
TIME-LAPSE CAMERA MOTOR
BUILT BY MEN WITH 25 YEARS EXPERIENCE
STOP MOTION ANIMATION
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TECHNICAL QUESTIONS & ANSWERS

Conducted by Walter Strenge, A.S.C.

QUESTIONS relating to cinematography or other phases of film production are invited from readers and will be answered by letter by Walter Strenge or by other qualified members of the American Society of Cinematographers. Questions and answers considered of general interest will appear in this column.—*Ed.*

Q How can I shoot boxing scenes with realism? Is a specific camera angle important? (2) What is the correct speed of the camera with relation to the fight action? (3) What method can I employ to obtain best professional-like sound effects of face, jaw and body blows in such action?—*C. J. Singapore, M.S.*

Answer: (1) Use a hand-held camera and work in close to the action. With 35mm cameras, the 28mm or 30mm lens produces good angles of view. Most effective angle, pictorially—shooting up at the fighters. Left hooks, right crosses, and uppercuts are most effective punches to shoot. (2) Shoot at normal speed if fighters are in real action; otherwise, step it up by shooting at 16 or 20 f.p.s. (3) Simplest method of producing most life-like sound of punches on sound track is to use an uncooked ham and slap or punch it as required to produce the effects desired. — *James Wong Howe, A.S.C.*

Q Can I make kinescopes of video programs, using my home TV set and a Bolex H-16 camera?—*R. S. DeC., Dayton, O.*

Answer: You can photograph images on your TV set with your Bolex camera, but the resulting films will show objectionable horizontal bars in each frame, and such footage will be unusable commercially. Regular professional kinescoping cameras have a shutter with a 288° opening, which gives an exposure of 1/30 second and a pull-down time of 1/20 second—the latter very important. Special construction of camera movement is required to obtain such a short-interval pull-down, and I don't think your Bolex camera is capable of this.

If you are interested in a relatively inexpensive camera for kinescopes, it is suggested that you look into the Auricon fitted with the special TVT shutter for this work.—*Ralph E. Lovell, N.B.C., Burbank, Calif.*

Q In the staging of special visual effects, (1) what type explosives are used in the Hollywood studios? (2) How are such explosives placed in the miniatures for most effective results?—*B. R., Philadephia, Penna.*

Answer: (1) Primo cord is used for shattering force; loose black rifle powder for flash and white smoke; Lycopodium for red flame and black smoke; and gasoline contained in Saran-wrap bags for voluminous red flames. (2) Effects explosives are usually placed inside the miniature by wiring or taping to the structure. Some are attached by "mudding" them on with modeling clay.—*James Gordon, A.S.C.*

Q Is the filter factor for the Pola Screen constant over the entire range of rotation?—*E. F., Blacksburg, Va.*

Answer: Yes.—*Walter Strenge, A.S.C.*

Q My problem is how to sync sound with a 16mm production I am about to film with a Bolex H-16 camera.—*R. S., Bayonne, N. J.*

Answer: Use a synchronous motor to drive your Bolex, so that photography will be synchronous with respect to the power system. Use any sprocket-driven or synchronous 1/4" tape recorder. *Loren Ryder, A.S.C. Associate.*

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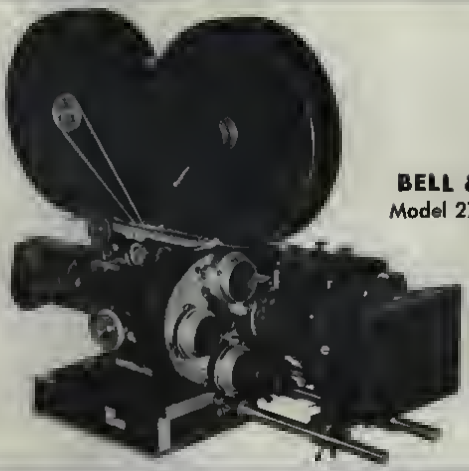

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Mitchell Sherty Triped Legs	75	35
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Bell & Howell Magazines, 35mm n 1000' Metal	165	110
Bell & Howell Magazines, 35mm x 400' Metal	135	60
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Bell & Howell Hi-Speed Check-Pawl Movement	1742	850
Bell & Howell Rackover	1800	400
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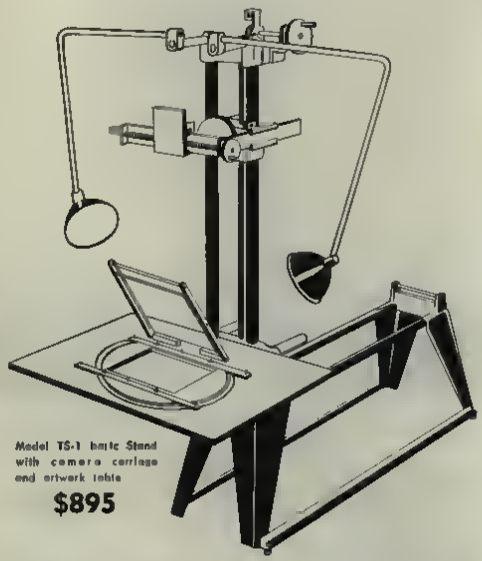

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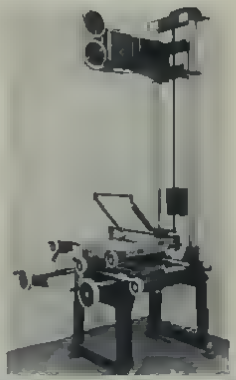

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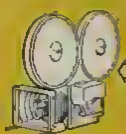

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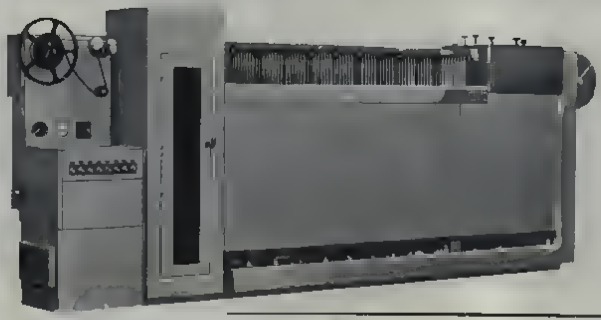

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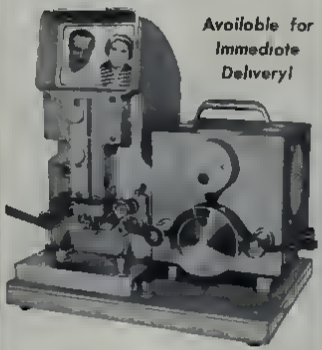

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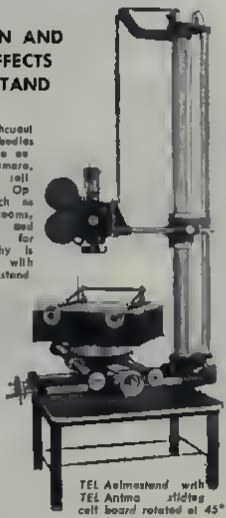

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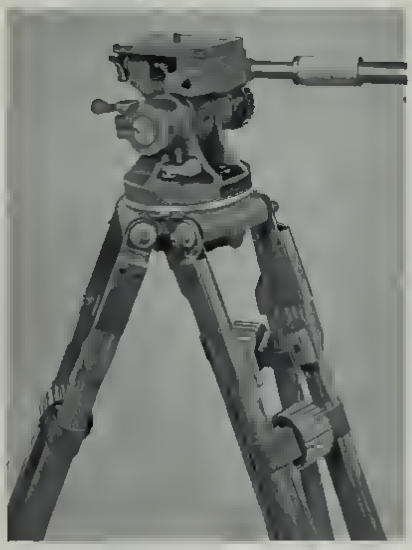

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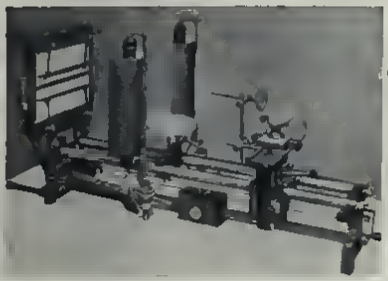

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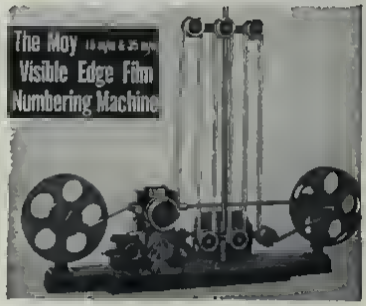

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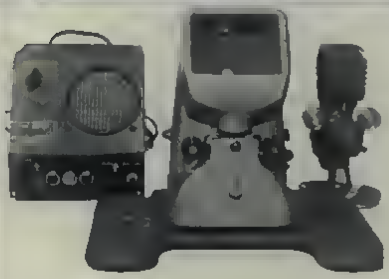

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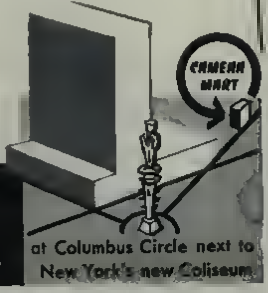

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BROKEN LIGHTING pattern enhanced the pictorial effectiveness of this street scene of an Oklahoma oil town of the twenties, where Jimmy Stewart is being photographed as he approaches camera for scene in "F B I. Story"

BOOSTER LAMPS, properly filtered for Eastman Color negative, are readied to light scene of Jimmy Stewart and Vera Miles lunching on balcony. Cameraman Biroc is left of camera, director LeRoy on opposite side

Filming "The F. B. I. Story"

Photographed by Joseph Biroc, A.S.C., most of the location shooting problems were solved in coreful pre-production planning.

By ARTHUR E. GAVIN

ON STUDIO BACK LOT set, director of photography Joseph Biroc, A S C., takes a light meter reading before photographing a scene for "The F B I Story" with Jimmy Stewart, who plays part of Bureau investigator

IN A DAY WHEN veteran directors of photography are inclined carefessly to sum up their most recent assignment as "just routine photography" it is refreshing to find Joseph Biroc, A S C., highly enthusiastic about the camera work of "The F B I Story," which he recently completed for Warner Brothers.

A yarn like "The F B I Story" doesn't happen along very often, so when Biroc was chosen to photograph it, his reaction was one of unbounded enthusiasm because it meant teaming again with director Mervyn LeRoy, with whom he worked so successfully in photographing "Home Before Dark." Besides, a great deal of "The F.B.I Story" was to be filmed in actual locales in the Bureau head

VIEW OF riverfront restaurant where scene at left was photographed. Here camera on dolly (center) prepares to shoot action depicting Stewart's and Miss Miles' arrival

PHOTOGRAPHING a scene for "The F.B.I. Story" in New York Subway station. Despite large area of the locale, adequate illumination was achieved with the limited lighting equipment that was available

quarters in Washington, D.C. And Biroc believes that location shooting has always given him greater opportunity to get away from formula photography and a chance to make truly creative contributions to a production with his camera work.

It was a foregone conclusion that producing a motion picture about the Federal Bureau of Identification would be one of the most demanding assignments encountered by a major studio production crew. Any story about this efficient and meticulous organization would naturally demand meticulously authentic depiction, and above all, honesty in the camera work.

Authenticity has become such a dominant factor in the production of Hollywood feature films today that increasingly fewer pictures are staged and photographed entirely in the studio. For the director of photography, this poses additional problems of estimating and providing adequate lighting equipment for the location work, and of meeting and solving the many problems that shooting in unfamiliar locales invariably presents.

With "The F.B.I. Story," these contingencies were anticipated and, to a major degree, minimized by a thorough canvass of the Washington and New York City locales in a location scouting trip undertaken by Joe Biroc, director LeRoy, the art director and the production manager several weeks in advance of the picture's starting date. Three days were spent by the group in each city.

To give the story the desired aspect of authenticity, director LeRoy insisted on shooting all of the action that takes place in F.B.I. offices, grounds, etc., in these very locales. This immediately posed seemingly unsurmountable lighting problems for color photography, for the lighting situation went to both extremes: there were rooms or corridors too small to light for action scenes in the usual way, and rooms in which thousands of typist work at thousands of desks—so enormous in area that to light them adequately for color seemed impossible. But Biroc solved the large-office lighting problem by utilizing all of the studio lighting equipment brought along from Hollywood, apportioning it where it would be most beneficial pictorially, then panning or utilizing the camera dolly in photographing the action, which often was revised to accommodate the lighting situations.

Production began with what was practically the initial sequence of the picture—a love scene between Jimmy Stewart, who plays an F.B.I. investigator, and Vera Miles, who works in the Bureau's library. The action takes place within a narrow corridor between the library bookcases—a passageway that was little more than 2½ feet in width, 6 feet deep and about 7 feet in height. "We worked on this set for two days," said Biroc, "and we could light it effectively only from the front because there was no way to get lights above and in back of the players for the conventional lighting we'd ordinarily give a set like this at the studio."

From here the company moved into the vast file room, the personal identification department, and staged and shot action in the hallways which seemingly stretch for blocks; there was important action shot in the Bureau's vast printing plant—where the familiar "Wanted" posters and countless other printing jobs are turned out.

When the company wound up filming at the F.B.I.'s Washington headquarters, it moved on to Quantico, Virginia where the Bureau maintains its pistol range for the constant small arms practice required of its personnel.

One of the more spectacular scenes filmed here was a close range view of some 50 F.B.I. agents simultaneously

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SOUND CAMERA FOR NEWS FILMING

Magic of transistors lessens weight of TV newsman's equipment by 13 pounds

By BILL LANDRUM

Chief Cinematogrpher, WLWI, Indianapolis, Ind

WHEN WE DEVELOPED and put into use the portable filming rig which I described in the March, 1958, issue of *American Cinematographer*, we at WLWI-TV felt that we had achieved the ultimate in a portable lightweigh sound and film recording unit for television news. And it probably was at the time. But subsequent use of it led to the desire for an even lighter and more efficient package. Our aim was to achieve a 16mm single-system camera and sound recording combination that would enable a news cameraman to move quickly and get his pictures and sound before the less-equipped competition could set up their cameras, locate power, and get out their mikes, cables, etc.

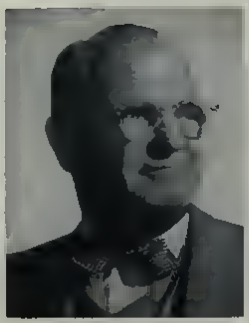
The unit described a year ago weighed around 22 pounds, including the power supply for the camera motor. It was portable and proved quite practical for certain news events where there wasn't sufficient time for a stationary set-up. Also, it enabled us to get some exciting spot news with sound where silent footage of the same events would not have conveyed the story nearly as well. We were the most "flexible" in covering local news, compared with cameramen shooting news for other Indianapolis TV stations. But the 22 pounds weight on one shoulder and the limitations imposed by having to use a single microphone led us to look into the possibility of transistorizing our equipment. The results are graphically illustrated in the accompanying photos.

Referring for a moment to the two photos below, the larger of the two shows the original equipment described above. The amplifier-mixer-battery unit to the right of camera, by its very size, suggests its great and cumbersome

Continued on Page 304

MOBILITY—the ability to "get in and get the picture quick"—is big asset of author's streamlined equipment. Amplifier and its batteries are now carried easily on a shoulder strap along with battery pack for powering camera motor.

AUTHOR'S equipment before it was transistorized is pictured above. At right is new transistorized amplifier which replaces cumbersome one pictured above.



JOSEPH RUTTENBERG, ASC

SAM LEAVITT, ASC

Leavitt, Ruttenberg, Win Cinematography Oscars

Aword for filming "Gigi" fourth for Joseph Ruttenberg, A.S.C., mokes him top Academy Aword winner omong cinematogrophers. "Defiont Ones" trophy first for Som Leovitt, A.S.C.

ANOTHER ILLUSTRIOUS name was added to the roster of Oscar winners and a three time winner received his fourth Oscar for photographic achievement to make him the top Academy Award winner in his class when the Academy of Motion Picture Arts and Sciences handed out its annual awards April 6th in Hollywood. A gleaming gold Oscar was awarded Sam Leavitt, A.S.C. for the best achievement in black-and-white photography for 1958 — that of "The Defiant Ones," a United Artists production. Joseph Ruttenberg, A.S.C., was presented the award for best color photography for the filming of MGM's "Gigi."

Ruttenberg previously won Oscars for "The Great Waltz" (1938), "Mrs. Miniver" (1942), and "Somebody Up There Likes Me" (1956). Previously, he had shared top Oscar winning honors with Arthur Miller, A.S.C., Leon Shamroy, A.S.C., and Winton Hoch, A.S.C. Each of these men have won three Oscars for achievement in photographing feature productions.

The imaginative photographic work that has marked every assignment undertaken to date by Sam Leavitt was destined to be recognized sooner or later. Even though none of his work prior to "The Defiant Ones" has ever made the nominee lists for Academy Awards, two of his most noteworthy accomplishments were previously placed on the pre-voting candidate lists by his fellow cinematographers. These were "A Star Is Born" (color, 1954) and "The Man With The Golden Arm" (B&W, 1955). An article describing the photography of "The Defiant Ones" appeared in the August, 1958, issue of *American Cinematographer*.

In that article we pointed out that Leavitt had photographed just about every type of motion picture that has been produced, from society dramas and musicals to rugged westerns, in both color and black-and-white. He seems to have a unique talent for giving special photographic luster to the gutsy, down-beat type of story — of creating with camera and lights moments of dramatic emphasis and visual impact that the players and dialogue and sound effects cannot do. In this respect "The Defiant Ones" is an outstanding cinematographic triumph.

As for Joe Ruttenberg, we said it be-

fore and it will stand repeating: "His photography is always stiff competition for his contemporaries." It isn't every year that he is given an assignment affording opportunity to display the full scope of his imaginative photographic talents. But in "Gigi" he found a story offering tremendous photographic challenge and in Vincente Minnelli a perceptive director with an uncommon understanding of the camera's possibilities and its limitations. The overwhelming success of "Gigi", both at the boxoffice and at the Academy Awards presentations—it won a total of nine awards—can be attributed to the creative moments these two men spent together in planning and executing the pictorial phase of the production. Earlier, Ruttenberg had been cited by the trade publication *Film Daily* for the photography of "Gigi" in its annual poll for the Filmdon's Famous Fives awards. Following the picture's initial press preview in Hollywood, an article describing the photography of "Gigi" appeared in the July, 1958, issue of *American Cinematographer*.

In all, ten major motion picture feature productions of 1958 were nominated for cinematography achievement awards by the Academy membership. The eight directors of photography who also were in the running with Leavitt and Ruttenberg have each received a Nomination Certificate from the Academy, which in itself is considered something more than a consolation award. The eight cinematographers and their nominated pictures are:

Daniel L. Fapp, A.S.C., "Desire Under The Elms" (B&W).

Lionel Lindon, A.S.C., "I Want To Live" (B&W).

Charles Lang, Jr., A.S.C., "Separate Tables" (B&W).

Joe MacDonald, A.S.C., "The Young Lions" (B&W).

Harry Stradling, Sr., A.S.C., "Auntie Mame" (Color).

William Daniels, A.S.C., "Cat On A Hot Tin Roof" (Color).

James Wong Howe, A.S.C., "The Old Man And The Sea" (Color).

Leon Shamroy, A.S.C., "South Pacific" (Color).

Some idea of the stiff competition which Leavitt and Ruttenberg both faced in this year's Oscar derby is the fact that six of the eight cameramen named above are previous Academy Award winners. All but Daniel Fapp and Joe MacDonald have won one or more Oscars for photography in previous years.

Other major awards presented by the Academy this year are:

Best Motion Picture: "Gigi," M-G-M.

Best Actress: Susan Hayward in "I Want To Live."

Best Actor: David Niven in "Separate Tables."

Best Supporting Actress: Wendy Hiller in "Separate Tables."

Best Supporting Actor: Burl Ives in "The Big Country."

Best Director: Vincente Minnelli for "Gigi."

Best Screenplay: Alan Jay Lerner for "Gigi."

Best Original Story and Screenplay: Nathan E. Douglas and Harold J. Smith for "The Defiant Ones."

Best Art Direction: Wm. A. Horning (deceased) and Preston Ames for "Gigi."

Best Set Decoration. Henry Grace and Keogh Gleason for "Gigi."

Best Song: "Gigi."

Best Scoring of A Musical: Andre Previn for "Gigi."

Best Scoring for a Dramatic or Comedy Picture: Dimitri Tiomkin for "The Old Man And The Sea."

Best Sound: Fred Hynes for "South Pacific."

Best Film Editing: Adrienne Fazan for "Gigi."

Best Costume Design: Cecil Beaton for "Gigi."

Best Special Effects. Tom Howard (British) for "Tom Thumb."

Best Documentary Feature: "White Wilderness," Walt Disney.

Best Documentary Short: "Ama Girl," Walt Disney.

Best Cartoon Short: "Knighty Knight Bugs," Warner Bros.

Best Live Action Short: "Grand Canyon," Walt Disney. (It is timely to note here that the aerial photography in this picture was done by Ray Fernstrom, A.S.C.).

Scientific and Technical Awards: Plaques signifying Class II Awards were presented to: Don W. Prideaux, Roy Leighton and the Lamp Division of General Electric Company for the development and production of an improved 10 kilowatt lamp for motion picture set lighting. This lamp has double the life of its predecessor, maintains higher light output throughout its life, and is stronger mechanically, reducing losses in transport and handling.

Panavision, Inc., for the design and

Continued on Page 309

BEAMING HAPPILY after receiving Oscars for Best Photographic Achievement from actress Doris Day are actor producer Jan Hall (left) who accepted award for Sam Leavitt, and Joseph Ruttenberg whose award for filming 'Gigi'—his fourth—puts him at the top of the list of Oscar winners for photography.

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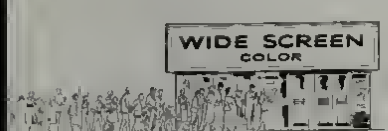

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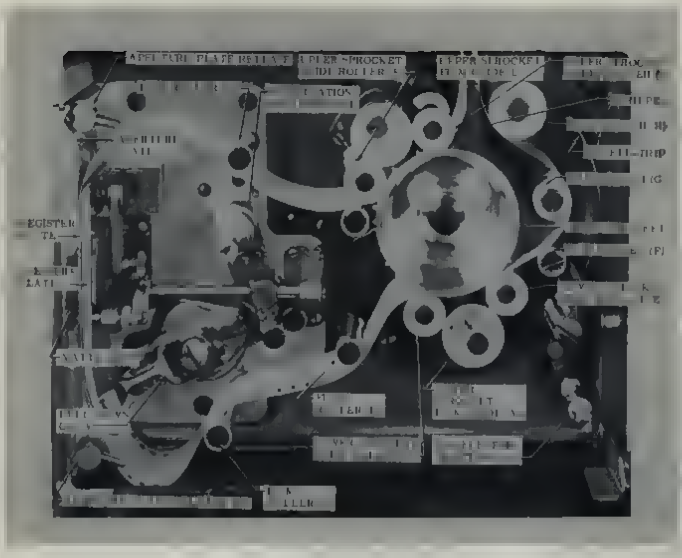

BY FOLLOWING THIS detailed photo anyone can thread the Mitchell BNC camera. Film is supplied and taken up by film magazine which is mounted on top of the camera

THE MITCHELL CAMERA

Part II

How the camera that is employed to shoot most Hollywood productions is assembled and used.

By CHARLES LORING

BY DESCRIPTION and illustrations in our March issue, the reader was given an intimate closeup view of the Mitchell NC and BNC motion picture cameras, which are used in most of the major Hollywood studios today in the production of theatrical and television films. Whereas the March article dealt primarily with description of the two cameras and their respective parts and features, this month we shall explain how the cameras are prepared and put into use.

Compared to lightweight, hand-held cameras, the Mitchell is an impressive piece of fine machinery of sufficient bulk to require mounting on a substantial base such as the Mitchell 2-speed gear head—which in turn is mounted on a heavy-duty tripod, perambulator, dolly or camera crane.

Unlike smaller 35mm cameras, the Mitchell must be stripped down or disassembled after use, and its various components stored in their respective carrying cases. The film magazine, viewfinder, camera motor, and the camera box itself are the four principal units which must be re-assembled again when the camera is to be used for photography.

The film magazines are never attached to the camera until after it is properly mounted on the base or vehicle on which it is to be used. Thus the camera box itself is first mounted on the friction head or gear head (whichever is to be used) so the spring-loaded hold-down screw of the head enters the threaded hole in the camera base. To make it possible to securely fasten the camera to the head, a crank is provided in the latter by which the hold-down screw may be conveniently and securely tightened.

The camera motor is mounted next. There is provision for two types: the sync sound motor and a variable speed motor. The sound motor is attached directly to the right side of the camera with thumbscrews and a sliding latch. The variable speed motor must be mounted on an adapter door, which replaces the regular camera door and is mounted in the same manner as the sound motor. Both motors have a manual turning knob to facilitate rotating the motor shaft when engaging it with the main drive shaft of the camera.

The Mitchell view finder is one of the camera's outstanding features. Of magnifying prismatic type, the image seen on the ground glass is upright and correct as to right and left, and has an area of approximately 1⅞"x3⅝". With the NC model, the view finder is mounted by simply sliding its dovetail bracket into the matching dovetail support located on the left-hand side of the camera base and adjacent to the focusing tube. The parallax adjustment at the rear of the finder attaches to a bracket on the horizontal section of the camera. In order to open the camera door, with the view finder mounted, it is necessary to release the parallax locking nut on top of the finder and to free the parallax adjustment bracket from the camera base. This allows the finder to be pivoted away from the camera door when it is opened for film loading or for checking the pressure plate, etc.

Mounting the view finder on the BNC model is accomplished in a similar way, except that it is necessary to synchronize parallax of the finder with the lens to be used, so that the finder field identically matches that of the lens. Parallax is established and maintained through an ingenious arrangement of parallax cams—seven in all,

which correspond to the focal length of the following lenses: 35mm, 40mm, 50mm, 75mm, and 100 mm, and 25mm and 30mm which are optional. Each cam is marked with its corresponding lens size figure for easy selection when it comes time to set the finder parallax to correspond with the lens to be used. In the parallax adjustment, the desired cam is interposed in the focus and parallax control mechanism so that it contacts the cam roller and thus controls the range of pivoting of the finder as the lens is focused by the manual focus control knobs—one of which is at the rear and the other at the left side of the camera.

The film magazine is the next unit to be mounted on the camera, and it must be loaded with the film prior to mounting. The magazines are available in 400-foot and 100-foot capacities. Threading film in the camera is done without cutting it and for this reason the film runs continuously from the feed chamber to the takeup chamber, with a loop for threading extending down through the light-traps of the magazine

Loading Mitchell magazines must be done entirely by "feel" or "touch" either in a darkroom or by using a lightproof changing bag. For the beginner, it is advisable to practice loading with a roll of leader or developed film —first in daylight, then in total darkness—in order to become thoroughly familiar with the loading procedure. As with any film magazine, each Mitchell magazine should be carefully cleaned

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SPECIAL STACKED REEL construction of new Multidata M-3 16mm film magazine permits data recording cameras to operate for up to 16 times as long as with standard 50-foot magazines

800-FT. MAGAZINE FOR DATA CAMERAS

To MEET THE NEED for a maximum film supply for the Model III and III-B Multidata 16mm cameras the company is now turning out for photographic instrumentation applications, Flight Research, Inc., Richmond, Va., has developed an 800-foot capacity magazine that permits camera operation for up to 16 times as long as with standard 50-foot magazines.

Known as the Multidata M-3 16mm film magazine, it permits continuous runs of up to 32,000 pictures. Featuring stacked reels, the magazine is actually as thin as the camera it is designed to serve. When mounted on the Multidata III or III-B camera the overall dimensions of the combined units are only 18⅞" in length, 10" in height, and 4 1/16" in thickness.

To permit the camera to operate freely without the inertia drag of a large reel of film, the M-3 magazine is designed to "throw" film to the camera on demand Separate feed and take-up drive systems in this unique magazine overcome the problems of differing feed and take-up torque and speed, allowing the magazine to be used for either single-frame or normal motion picture operation at speeds up to 40 frames per second

Specially designed, removable-flange, daylight loading reels are supplied with the magazine so that the only darkroom operation required is the placing of the film, still on its original raw stock core, onto the reel. The reel may then be placed in the magazine and the magazine's film transport assembly threaded in full light. The loaded magazine mounts easily to the camera and is locked in place to assure reliable operation.

The film transport of the M-3 magazine slips into the camera as simply as the standard 50-foot magazine. A heavy, machined dovetail mounting plate supplied for the camera supports the additional weight of the 800 feet of film and the magazine itself. For high "G" installations, mounting holes in the basic magazine chassis permit the magazine itself to be bolted to a mounting surface

An important feature are the two thermostatically-controlled strip

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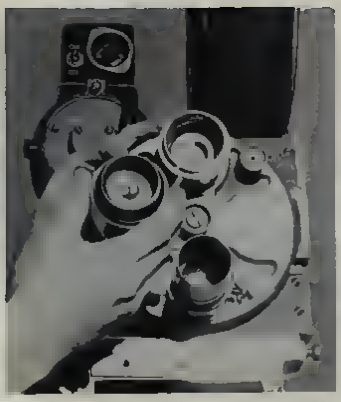


CHOOSING AND

SOME MOTION PICTURE cameramen often choose a lens for convenience in shooting, rather than for its pictorial effectiveness. Instead of moving the camera for a fresh angle and choosing a lens more suitable for that viewpoint —the indifferent or inexperienced cameraman will merely switch to a lens of different focal length, simply to cover the area desired. The veteran professional cameraman knows, however, that lenses of various focal length possess inherent story-telling powers when used correctly. Flipping a lens turret so that every lens is brought into play from the same camera set-up may be fine for covering an emergency news story where there is little time for subtleties. Production filming, however, requires a great deal of experience, thought and planning in choosing and using the right lens for the desired effect.

The standard lenses most commonly used on studio and production 35mm motion picture cameras are usually F/2 or F/2.3; usually slightly faster—F/1.9 or F/1.5—on 16mm cameras. This is sufficient speed, compatable with lens quality, for shooting under any conditions, particularly with modern ultra-fast black-and-white emulsions. Extremely fast "emergency" lenses on the order of F/1 or thereabouts are available, and these are ideal for occasional filming under difficult conditions, especially in color. So, lens speed can be dismissed as no problem since ordinarily there is lens speed to spare on most set-ups.

The most important factor in choosing a lens for a particular shot is its focal length, which in turn governs its angular coverage and depth of field. The shorter the focal length the wider the angular coverage and the greater the depth of field. Conversely: the longer the lens the narrower the lens angle and the less depth available. But there is much more to choosing a lens for a particular set-up than its focal length, angular coverage and depth. Such important factors as linear perspective, distortion, flatness of field, modeling, image separation, image speed, camera movement, vanishing point, camera angle and other important things must be considered.

Lenses (other than zoom lenses which will not be discussed here) can be broken down into three basic focal lengths. They are: normal, wide-angle and telephoto. Actually the term "normal" is a misnomer since only the lens most effective for the shot at hand is really the normal lens to use. Down through the years, however, the one-inch lens for 16mm cameras and the two-inch for 35mm cameras have been considered as normal or standard lenses, while anything shorter is considered wide-angle. Optics of longer focal length are designated telephotos.

Professional cinematographers, particularly those filming for theatrical release, have almost completely discarded the use of normal lenses, especially for interiors. The slightly shorter than normal lenses—the 35mm and 40mm optics for 35mm cameras, for instance, have become the workhorses since they are better adapted to sound stage shooting. The corresponding focal lengths for 16mm cameras would be the 17mm and 20mm lenses. Cameramen shooting for either television or normal 1:85 to 1 ratio wide-screen pictures have to resort to wide-angle lenses because the "cut-off" inherent in such filming makes it necessary to either pull back or switch to a shorter lens for the same size image that would be recorded with a normal lens. Experienced cameramen discovered long ago that greater realism and a more natural appearing screen image is best captured with shorter than normal lenses.

The demand for still shorter wide-angle lenses have been met by modern optical scientists using the latest in rare element glass, possessing high refractive index and less dispersion, and through the utilization of electronics for more rapid and accurate computations.

Today we have 18mm, 25mm, 28mm, 30mm, 35mm and 40mm lenses for 35mm cameras and 9.5mm, 10mm, 12.5mm, 13mm, 15mm, 17mm and 20mm lenses for 16mm cameras. While the recently introduced Kinoptic 5.7 lens (with an angular field of 113 degrees!) can be considered in the freak class—it, too, has dramatic possibilities and opens up completely new avenues of cinematic expression in 16mm photography.

Cameramen generally think of the wide-angle lens for "tight spot" filming in small rooms or small and crowded sets. While it is very useful for taking in wide areas from a short distance and making small sets appear much larger than they actually are—

USING LENSES

Knowledge of lenses—knowing what each can do to enhance perspective and composition—is essential to creative cinematography. This initial article of a series deals with the attributes of wide-angle lenses.

this is but one of its minor attributes.

Let us consider some of the advantages of the wide-angle lens: its wide covering power and enormous depth of field closely approximates that of the human eye. The eye sees sharply over a narrow angle, but its constant scanning action creates the impression that it is viewing a wide expanse, while actually much of the scene is viewed out of the "corner of the eye." Since the eye also changes focus rapidly, we receive the additional impression that we see everything sharply, regardless of distance. This accounts for the popularity of the Cinerama and Cinemiracle processes because they present a wide-angle view that seemingly places the viewer in the midst of the screened action.

This effect, on a lesser scale of course, can be extended to standard ratio filming through the deft employment of wide-angle optics. The wide-angle lens stretches perspective and thus records a more distinct separation of planes, which in turn creates a pseudo third-dimensional effect. People, furniture, trees or other objects in a scene — particularly if variably spaced and cross-lighted — will stand out and appear separated from each other with greater clarity than is obtainable with longer focus lenses. Working the camera in closer to the action, and composing so that players, props and other objects occupy positions at various distances from the camera, results in a more realistic picture that seemingly brings the viewer into the scene itself. This effect can be vastly enhanced if scene components are appropriately placed at the sides and top or bottom of the frame. If the composition is set off with a strong foreground, and cross lighted, a vivid spatial relationship will be captured conveying an intimate impression closely resembling the audience participation of the wide-screen processes. The same effect cannot be obtained with longer lenses since they flatten images, squeeze

Continued on Page 314

SCENE FROM "Johnny Belinda" photographed by Ted McCord, ASC, for Warner Bros., demonstrates the type of composition which use of a wide-angle lens at low elevation can enhance pictorially when aided by imaginative lighting.

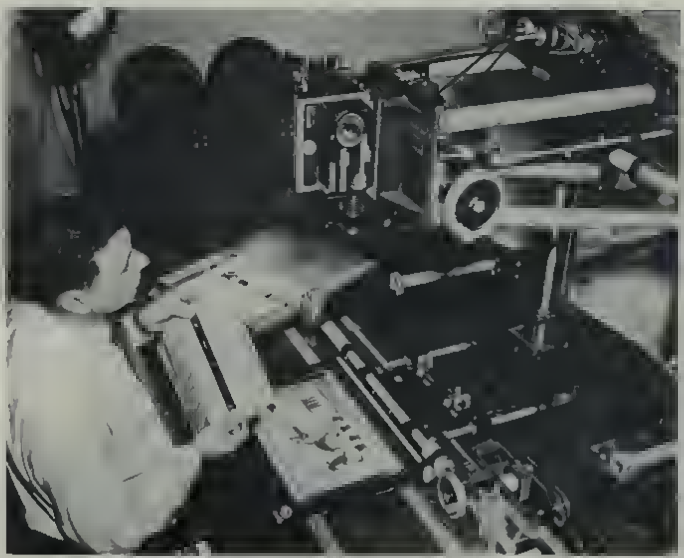


FIG 1—Typical animation setup for production of television commercials. Note background art work on table of the Oxberry animation stand. Operator is consulting guide sheet prepared by the animator before proceeding with the photography of the numerous cells and/or drawings involved in the commercial. Equipment shown will photograph every known effect developed to date for animated films.

ANIMATED FILM TECHNIQUES

PART IX

ARTICLE VIII OF THIS series, which appeared in our March issue, concluded the analysis and description of animation techniques employed in the creation of animated cartoons and feature films for the theatre, based on a series of articles written by Carl Fallberg, which appeared earlier in this publication. The ninth article in the series is written by Vern Palen and deals with animation in television and commercial film production—a field in which the medium is finding new and broader horizons of utilization and development. Future articles will deal with still other aspects of non-theatrical animated film production techniques.—EDITOR

UP TO NOW, this series of articles on animation techniques has dealt with the production of animated films for theatrical release—a large operation involving many people and very complex equipment.

From the highly technical and intricate animated cartoon techniques of Hollywood there has evolved today a more streamlined and consequently less costly animation procedure, the result of the demands of television and the growing use of motion picture films in business, industry, and schools. The extensive progress made during recent years by the producers of non-theatrical animated films can be credited largely to the improved equipment that has been developed especially to meet their needs, thus enabling them to deliver top quality animated films in less time and at surprising low cost. Not all of the savings in costs is due entirely to the newer equipment, for a substantial share should be credited to the newer animation techniques that have been developed in recent years—much of it made possible, however, by the equipment mentioned, as we shall see later on.

The theatrical, Disney-type animation technique which we have discussed in earlier articles is little used today in the production of animated films for television advertising, or for business, training and promotional films. The reason? Too intricate and thus too costly. Since each frame of theatrical animation requires one or more individual drawings or cels, every object in the picture takes on an aspect of motion. When the wind blows, even the trees and grass in a scene must weave to and fro in the breeze. By Contrast, movement in animated TV commercials is confined to the principal characters. Most if not all scenery and unimportant props are eliminated entirely since they serve no useful purpose and tend to distract from the main theme. And with distractions eliminated, the video viewer is better able to concentrate on the

FIG 2—Frame from animated film produced for a college promotion program typifies new, streamlined animation technique that substitutes simple art work and animated silhouette cutouts for laborious cel animation.

sponsor's selling message. Obviously, this streamlining of animation operations lowers production costs considerably, too.

In recent years, skilled animators have developed tricks and shortcuts which achieve the maximum possible visual effect with a minimum amount of work. Instead of trying to duplicate with drawings and animation all the details of a live production, the animator deliberately chooses situations which reduce the amount of drawings or other art work required.

Simplicity is the keynote in producing animation for TV commercials since elaborate embellishments go unnoticed on the small screen of a television receiver. Characters are simplified in design in order to eliminate lines which cannot be justified. Lions are less inexpensive to draw and animate than tigers because tigers have stripes that require more drawing time In many instances, smart animators make one drawing serve for two frames of film. Thus in-between drawings are added only when a screening test of the art work proves them necessary.

Still another economy in the production of TV animation art work is realized when movement is repeated, for example, as when a man is pictured rowing a boat. The same sequence of drawings depicting the rowing action can be used again and again for the duration of the action. In a similar way, a figure can be made to appear walking over a moving background as though the camera were following him. A scene of an automobile moving along a road, jolting up and down, with puffing exhaust and rolling wheels, permits repetition many times, using only a few drawings over a moving background

Use of cutouts and puppets can save a great deal of time for the animator. Black silhouette characters that move against a background scene painted in light gray tones are easiest to handle. Animation in silhouette of characters made of paper is accomplished by making the head, arms, legs, etc., separately and attaching them to the body with joint pins to provide the required sequential movement. Beaded-type solid puppets may also be conveniently used for animation. But regardless of the medium chosen—art on paper or cels, cutouts, or puppets—the effective and professional-like result will, in the final analysis, rest with the equipment used and the proficiency of the artist or animator charged with the job's execution.

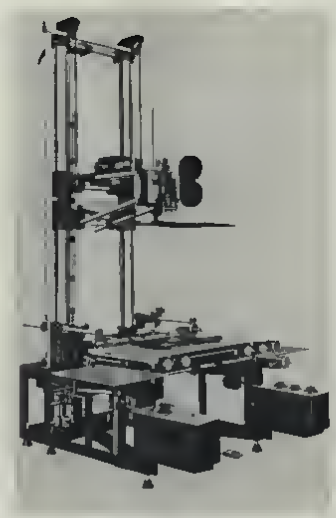


FIG. 3—Professional-type Oxberry animation stand has every conceivable feature.

FIG. 4—Low-cost Oxberry animation stand ideally suited for low budget productions

One of the basic requirements of a TV spot advertisement is that it convey an effective message in a minimum of time. In addition, production costs must be held down in order that new, fresh ideas may be introduced at frequent intervals. The public quickly tires of commercials that are repeated too often American ingenuity found the solution for the problem by developing new concepts involving methods and machines.

In a 60 second animated film for a TV commercial there are 1440 frames or pictures, since the camera and projector operate at a speed of 24 frames per second. It is obvious, therefore, that 1440 frames must carry the complete visual message, with the sound track conveying the words and all the other audible effects precisely matched to the corresponding picture frames Employing full animation, such a film would probably cost at least $1000. Now, with new techniques and equipment many studios can deliver an animated commercial of much higher quality in a shorter time and a fraction of the cost of full animation.

Take the case of a recent college pro-

Continued on Page 310

FIG. 5—Three-hole progressive punch for punching guide holes in cels and drawings for accurate alignment.

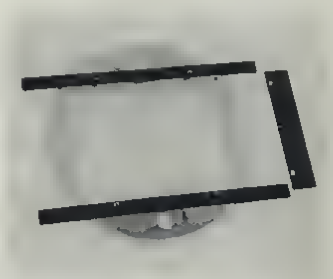
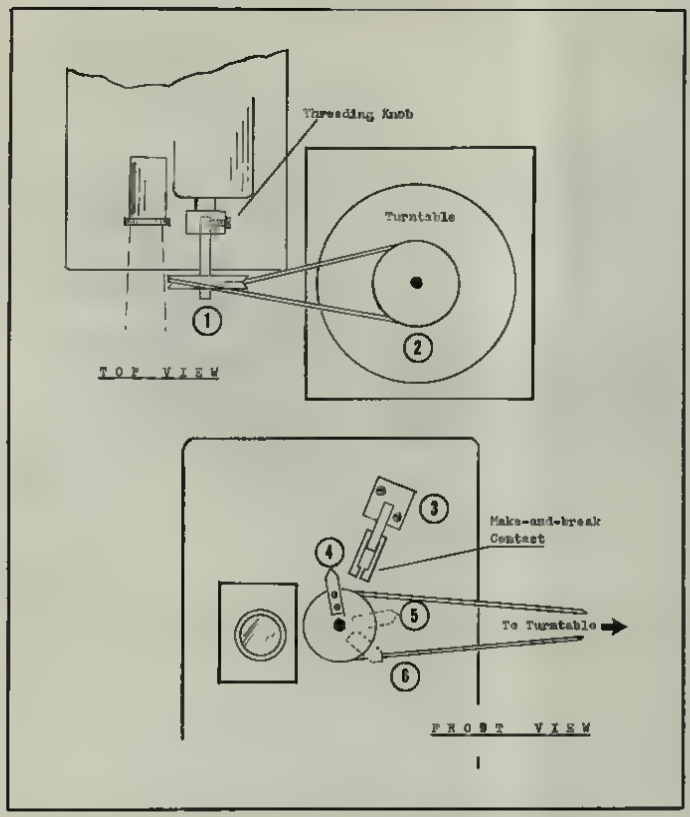


FIG. 6—Drawing board used in preparing animation drawings Glass panel in center admits light from underneath.



DIAGRAMS show top and front view of B&H 202 sound projector with gadgets added to achieve synchronization of shutter with that of camera for optical printing. Figures identify components described by author in accompanying text.

Low-budget Optical Printer

How one movie amateur improvised with projector and camera to produce additional scenes for his award-winning film.

By CLIFFORD V. HARRINGTON

READER INTEREST created by the article in our March issue which described how Tullio Pellegrini produced "The Nightingale," prize-winning 16mm color film, brings this follow-up article which will attempt to describe the homemade optical effects equipment made and used by Pellegrini for the purpose of making certain shots for his picture following the initial filming. The March article revealed how the filmer, once he had completed a rough-cut of his film, decided he wanted several shots that would improve the continuity. He wanted a scene of fireflies on an Italian meadow at dusk; a shot of two nightingales facing each other in a closeup (he had a closeup with only one bird); and a montage shot showing a number of nightingales in one scene. Pellegrini altered some of his 16mm equipment for the purpose of making the desired shots as the professional studios would—by special optical effects.

The task posed for Pellegrini was to provide equipment that would enable him to re-photograph or copy 16mm color footage he wished to combine with other images by superimposition, to produce in one scene two or more images where only one appears in the original, and to make photo-montage scenes composed of sections of other scenes on separate strips of film. In professional studios such work is accomplished with costly and intricate equipment. For an imaginative 16mm filmer such as Pellegrini, the problem was one of adapting his projection and camera equipment to accomplish a similar result.

The first problem tackled was that of providing synchronization of shutter movement between projector and camera for the purpose of re-photographing certain 16mm film frames, in a manner the professionals do by optical printing. The accompanying diagram shows how Pellegrini's projector was altered and augmented with certain gadgets to achieve the necessary sync of the shutters.

Equipment involved consisted of a model 202 Bell & Howell 16mm magnetic-optical sound projector, Bolex H-16 camera, and an ordinary record player. The basic parts that were required to adapt the projector for optical printing consisted of a drive-shaft and two pulleys, one belt, a solenoid, an electrical contact, miscellaneous wires, two front surface mirrors and a 4″x6″ rectangle of dull white cardboard.

A hole was first drilled in the threading knob of the projector to which was

Continued on Page 302

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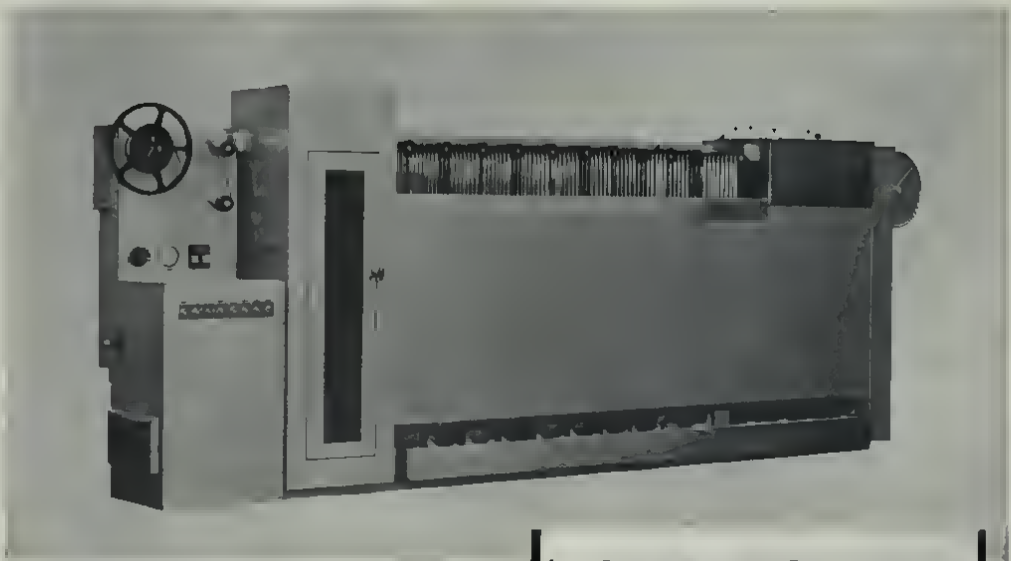

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OPTICAL PRINTER

Continued from Page 300

attached the drive-shaft and one of the pulleys (1 in Fig. 1) Another pulley (2) was mounted on the turntable of the record player and the two pulleys connected with a belt. When the projector clutch was shifted, the record player powered the mechanism.

To activate the camera in synchronization, an electrical contact (3) was mounted on the projector case above the pulley. A tripping bar (4) was fastened to the pulley and adjusted so that it closes the contact (3) when the projector shutter is open, thus causing the solenoid attached to the single-frame release of the camera to function for a single frame exposure. The Bolex camera operates by its own spring motor set to run the camera at 8 fps. Thus, each time the projector threading knob completes one revolution, a new frame of film moves into the projector film gate and the camera makes the exposure.

With the camera and projector thus working in synchronization the next step involved setting up a small rectangle of dull white cardboard about 18" in front of the projector to serve as a screen. Then two front surface mirrors were mounted to direct the beam of light through the open side of the projector case and forward to the tiny screen. This allowed setting the camera immediately adjacent to the light beam to photograph the projected images, thus minimizing any keystoning effect.

Lenses of equal length were used in both camera and projector for filming at a 1:1 ratio. This permitted the camera and projector to be placed at the same distance from the screen. Two-inch lenses were found to be the most practicable

Before focusing the image on the screen, it was necessary to remove the condenser lens from the projector lamphouse, otherwise the resulting concentration of heat would damage the slowly moving film. The picture must be focused while the film is in motion in order to keep it from buckling in the film gate from the heat of the lamp.

The camera was set up and positioned carefully. Next the lens was focused with the aid of the reflex viewing system as the shot to be recorded was projected on the screen.

Because the light from the 1000-watt lamp of the projector was approximately 3200°K and the film's inherent blue tint raised the illumination reaching the screen to 4000°K, Pellegrini used a filter to convert the illumination to the 3400°K required for Type A Kodachrome film used in the camera. Here, Harrison & Harrison filters C¼ and C½ gave the best correction, Pellegrini reports.

Exposure was determined by pointing a meter at the miniature cardboard screen as the scene to be rephotographed was projected. Color temperature was determined with a reliable color meter.

With the camera and projector ready to operate the fire screen in the projector was secured so it would not function when the clutch was employed.

Several experiments were necessary but soon desirable results were obtained After the successful recording of simple shots, portions of scenes were enlarged to dramatic close-ups (blow-ups) by substituting longer focal length lenses on the camera.

To produce a split frame shot a portion of a frame was masked, projected and photographed, and the film rewound after the exposure. The unexposed area was then exposed to complete the split-screen composition A montage was made by progressively masking and exposing several sections of the frame

Further experimentation called for filming a subject facing its own image on the screen by rear-screen projection One-half of the frame was masked and the film exposed by the procedure described above. A frosted glass was substituted for the cardboard screen and the camera was moved to a spot opposite and facing its former position beside the camera. The same subject was photographed on the unexposed portion of the film as the projected image faced in the opposite direction on the back side of the frosted glass.

A multitude of uses can be found by the imaginative amateur filmer for an optical printer such as described here. Among them is shooting reverse action. By twisting the belt connecting the turntable and projector, the photographer can make the projector move in reverse, while the camera continues to run forward.

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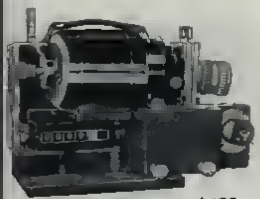

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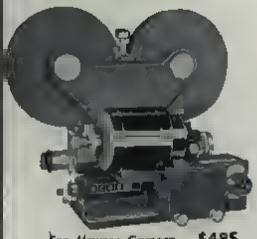

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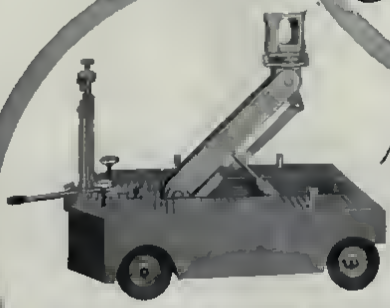

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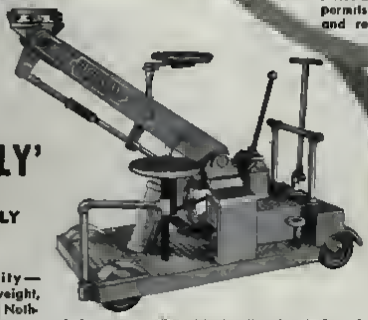

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accomplished with the printer by adding trip bars (5 and 6 in Fig. 1) to the pulley on the projector. Because the shutter of the B&H 202 projector is shaped like a three-blade propeller, light passes through the film gate three times as each frame is held in place. By adding one or two trip bars to the pulley in positions which correspond to the shutter openings, more than one impression of the same frame may be recorded. Thus, shots can be extended beyond their normal length, Pellegrini explained.

Color scenes shot out of doors without a filter on Type A Kodachrome can be corrected for color balance by rephotographing them with a filter. Scenes made with several cameras can have matching frame lines after they are refilmed with one camera. Stop motion may be added to amateur films as also may wipes, fades and lap dissolves. Important black-and-white shots can be cut into color films by first rephotographing them with this equipment and using a tinted screen.

Because of the amateur equipment used, perfect film registration cannot always be expected, and there is apt to be some film movement visible within the frame. In shots which have been masked the matching edges may be slightly fuzzy. Enlarged portions of scenes may show increased grain. To minimize these short-comings such homemade optical effects as described here should be kept as brief as possible.

However, when carefully planned and executed, effects created with such homemade equipment as described here can add immeasurably to the interest of amateur films. ■

800-FT. MAGAZINE

Continued from Page 295

heaters located within the magazine near the film transport mechanism, which insure efficient operation at low temperatures. The heaters draw 50 watts.

The magazine film transport and takeup reel drive are powered by a 28-volt D.C. motor. A cut-off switch stops the motor and magazine movement automatically with the passage of the end of the roll of film, or in case of film break or jam. The function of this switch can also be extended to the outside of the magazine so it will also automatically cut off the camera drive motor.

With the additional capability of much longer running time, the model 111-B camera with the M 3 magazine is now being used for highly specialized airborne oscilloscope recording, long term studies of cloud formations, and a variety of other photographic instrumentation applications.

Like other Multidata cameras, the 16mm model 111-B is an extremely versatile recording instrument, which can be used as a standard motion picture camera. The camera can also be synchronized with groups of other Multidata cameras for simultaneous photography of widely separated events and can be operated as a single-frame camera coordinated with other equipment at speeds up to 20 pictures per second.

SOUND CAMERA

Continued from Page 289

weight. The smaller photo pictures the new, 4-pound transistorized amplifier-mixer that replaces it and which the author recently completed and placed in regular daily operation at WLWL. It consists of a 7 transistor amplifier, has two microphone inputs, and has controls for internal battery power for both the sound recording exciter lamp and the amplifier.

The fact that the 12-volt batteries necessary for the sound track lamp had to be included doubled the physical size of this two-channel unit. The amplifier and its battery are contained in the left half, the sound track batteries in the right half. When shooting in a location where AC power is readily available for the camera motor, it is only necessary to take along the unit shown and the camera.

The new, compact battery and amplifier unit is equipped with both a handle for carrying and a shoulder strap. When suspended from the cameraman's shoulder, as pictured, along with the 5-pound 110-volt power supply (described in the earlier article), also on a shoulder strap, the cameraman is burdened with only nine pounds of weight instead of the 22 pounds imposed by the old and bulkier unit.

The frequency response of the transistorized amplifier, when it was completed, was flat within one db from 20 to 15,000 cps. When we made the response tests we found that the galvanometer of the Auricon Cine-Voice camera was "bass sensitive" below about 300 cps. We found that with a roll-off from 300 cps down to 20 cps we obtained a relatively flat resultant response off the processed film

In addition to the advantages of reduced weight, long life, and the low noise level of transistors, the linearity of the amplifier stages eliminated to a great extent the saturation on overloads common with tube amplifiers. A single small 45-volt hearing aid battery with a possible life of 100 hours is included in the amplifier section.

The accompanying photo of the cameraman in action illustrates portability of the equipment. The Electro-Voice mike is shown mounted on the camera immediately below the view finder. This is used for interviews between the cameraman and a personality or for recording actual sounds of a spot news event. The additional microphone channel permits two-mike interviews or the recording of voice-over-narration with mixing of speech or music background from another point

The author now has on the drawing board plans for a smaller, ultra-compact unit to be mounted on the camera itself, thus reducing further the weight that must be carried on a shoulder strap. The new unit will permit audio level adjustments to be made by the cameraman while shooting is in progress, without having to take his eye from the view finder. The VU meter movement in this unit will be located within the view-finder housing.

The new compact amplifier described here was designed as a separate instead of a camera-mounted unit because the use of a zoom lens—which is frequent in news work—precludes the mounting of such a unit on the convenient left-hand side of the camera

It is interesting to note that, following the successful weight-reducing operation on our news-camera amplifier unit, it is now being considered by the news film heads of other television stations in the Crosley network, particularly in Columbus, Dayton, and Cincinnati, Ohio, and Atlanta, Georgia ■

"THE F.B.I. STORY"

Continued from Page 287

firing tommy guns, using real ammunition. To protect the camera and the company crew from fragments resulting from the firing, a protective sheet of clear plastic was set up in front of the camera

Before the company moved on to New York to film scenes there, it completed an interesting sequence of shooting near and within historic Herzog's Restaurant overlooking the Potomac River. Here were photographed scenes showing Jimmy Stewart and Miss Miles arriving at the picturesque waterfront eatery, and dining on its panoramic balcony. Because this action in the story takes place in the early 20s, the street in front of Herzogs had to be filled with vehicles of that day—both automobiles and horse-drawn carriages and wagons. Stars, bit players and extras all were costumed in keeping with the era

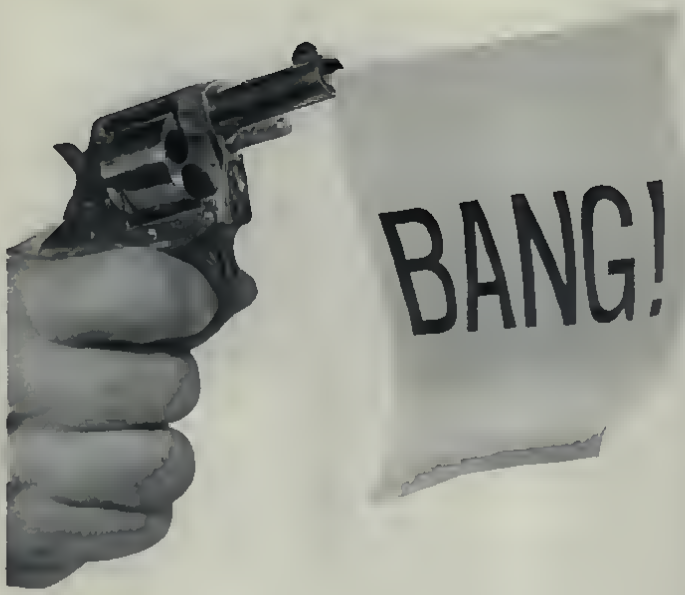
For the street scenes, Biroc had the Mitchell camera mounted on a dolly. Later, in order to photograph the important scene of Stwcart and Miss Miles at the table, a high parallel was built in the street for the camera and necessary booster lights, which brought the lens to the level desired by director LeRoy for the scene.

One interesting photographic problem encountered by cinematographer Biroc was introduced when director LeRoy, displaying his customary imaginative flare, decided upon a scene in the Lincoln memorial. He was surveying the memorial's interior using the little viewer which is customary with him, and attempting to find a camera angle that would include something of the memorial that would be easily identifiable on the screen yet encompass more than a little of its impressive dignity—plus including for an atmospheric backdrop the pool and monument that may be seen through its portals.

"Meantime," said Biroc, "I was sizing up the situation, too. Presently, LeRoy observed me pacing off the distance between Lincoln's statue and the wall at the rear, and studying the components of the structure, and came over and said: 'Got any ideas?'

"One of the things I like about Mervyn LeRoy is the way he looks for—indeed invites—ideas from those who work with him, and the fact that

Every shot . . .



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"I suggested that we erect a high parallel behind the Lincoln figure on which to mount the camera, which would enable us to shoot at a downward angle in such a way as to take in just enough of the figure to make it identifiable and thus establish the locale, and at the same time include the artistic columns of the memorial as a framework for the pool and other objects that could be observed in the background from this vantage point

"LeRoy said, 'Get it!' And we went to work"

Biroc employed no ND filters to correct for the sky area in the background "We exposed for the outside objects beyond the memorial and let everything else come through proportionately," he explained.

Following the windup of photography in Washington, the company moved on to New York City. Here a lengthy sequence was to be filmed depicting a surveillance routine involving a team of F.B.I. investigators tracking a suspect as he makes his way through the busy city. In this action the suspect is being "tailed" first by one operative and then another, as he walks down the street, hops a bus, takes the subway, and finally attempts to lose himself in the crowd at Coney Island when he suspects that he is being followed The big problem here was to keep "rights" and "lefts" straight so there'd be no trouble in the cutting. While all this was insured by thorough visualization in the pre-production planning then setting it down clearly in the script, invariably when it comes time to shoot on location some changes are made in routines, and it is here that vigilance is required to keep the action going in the right direction, Biroc explained.

Most interesting shooting in New York took place in an old abandoned subway station, which the railway company re-fitted especially for the picture. Turnstiles, the familiar gum vending machines, and a host of other props were brought in and installed to make the station appear as it did a decade ago when the action to be staged supposedly took place.

For Biroc, the cavernous location posed some lighting problems, but it finally turned out that sufficient illumination equipment had been brought along to meet the need. For one thing, in this remote location, the company

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was not hampered by the restrictions that prevail in New York City proper with regard to cables and cable junction boxes—the bane of every Hollywood cameraman who has to work on location there. "In the subway location, we were able to work with our studio lighting cables and equipment just as we do in Hollywood," Biroc said.

The company brought along most of the necessary lighting equipment from Hollywood, except generators, which were rented in New York This included, in addition to the cables, etc., eight Brutes, sixteen 10-Ks, twenty Seniors and a couple of Colortran and Masterlite outfits. In all, two baggage cars were required to transport this equipment along with that from the grip, sound and prop departments.

Following the company's return to Hollywood, 27 nights were spent shooting exteriors on the Warner Brothers back lot. Here on the studio's Western Street, which had been altered to resemble the main street of an Oklahoma oiltown before the 20s, scenes were shot depicting Stewart and his fellow-investigator's efforts to track down a man who was fleecing the Indians of their oil lands—and murdering them when he could accomplish his ends in no other way.

Because the script called for a great deal of activity in the street it was a problem to light it adequately, especially as it was necessary to achieve maximum depth so action could be extended far into the background and photographed in single takes, rather than moving in with the camera, lights and other equipment in subsequent set-ups To properly light one tree, which stood mid way up this street, four Brutes were required. Biroc employed zone lighting to illuminate this street from one end to the other, thus accenting the scene in a series of light and dark areas Brutes and spots were placed to one side of buildings and in back of large objects in the scene, and their light directed on other buildings, or a portion of the street itself. so that the players in their action walked in and out of light and shadow for a most natural effect of night.

In another night sequence which had to do with Stewart and his fellow investigators tracking down certain members of the Ku Klux Klan suspected of fomenting trouble. Biroc found inspiration for unusual camera treatment in a scene which found ready approval with director LeRoy. The latter wished to begin the shot with the camera, on the Chapman crane, focused close up on a newspaper with a bold headline about KKK activities pasted on the publisher's window, then pull back to show, through the window, the editor working at his desk. This was to be followed by a shot showing a group of white-hooded Klansmen descending upon the newspaper office intent on wrecking it.

While director LeRoy was contemplating the scene through his finder, Joe Biroc was off to one side appraising it from a different angle and giving instructions to his gaffer about some lights. When LeRoy observed this, he called out to Biroc with his familiar query: "Got any ideas?"

"Let's get up on the crane," Biroc smiled, "I'll show you what I've got in mind."

"So we got on," Joe relates, "and lined up the camera on the insert of the newspaper—the start of the shot As we pulled back, we panned slightly to take in the editor at his desk At the same time, we saw reflected in the window the images of the irate Klansmen descending upon the newspaper office. Thus two separate scenes—that of the newspaper and the editor at work, and the menacing Klansmen—were combined in a single take. In addition, dramatic impact was given the scene by showing the threating Klansmen's approach by reflection in the window before they actually

CINEPHONIC—NEW 16MM MAGNETIC SOUND CAMERA

EXCLUSIVE MARKETING rights to a new 16mm motion picture camera, featuring a self-contained magnetic sound system, have been announced by the Industrial Products Division of Fairchild Camera and Instrument Corporation Known as the "Cinephonic", the camera will be marketed by Fairchild under an agreement with the Magnetic Sound Camera Corporation, Chicago

The 16mm single-system magnetic sound unit is designed for maximum portability, ideally suited to TV news filming With its 100-foot magazine the camera is easily hand held Power is supplied by any 110V outlet, or through a portable power pack. By use of a special jack, the camera also may be operated from an automobile cigarette lighter

Feature of the camera is its miniature, transistorized magnetic sound recorder, which is built into the unit. It records on conventional magnetic striped films, and offers the advantage that processing has no effect whatever on magnetic sound Sound inputs allow the photographer to record the subject and background, while simultaneously adding his own narration or additional sound through a mixer input.

Sound monitoring is accomplished by observing a volume (VU) meter, which is built into the finder. This allows simultaneous observation of both scene and sound level. Optional feature is off-the-head monitoring, in which the photographer hears his actual recording from the stripe a split second after the recording.

THE CINEPHONIC features a miniature, transistorized magnetic sound recorder.

The camera is supplied with earphones, magazine, cables and microphone Lenses are available from Fairchild. Magazines for 400-ft and 1200-ft. capacity are also available.

A number of markets are envisioned for the new product including use by television stations for news and public affairs coverage, filmed local commercials and for industrial, business, medical, professional and educational films.

Fairchild points out that the new camera can be used in conjunction with the company's "Mini-Rapid 16" automatic film processor, which will process 100 feet of black-and-white film in approximately 20 minutes. ■

walked into the scene. To produce the dramatic reflection, Biroc earlier had four Brutes moved into position to light the Klansmen for the effect. Needless to say, director LeRoy was enthusiastic about Biroc's imaginative idea and that is the way the shot was made. This is an example of how ideas develop right on the set as the picture is being photographed; how a creative director of photography with imaginative ideas can be of immeasurable help to a director—a receptive director, that is.

"Throughout the whole production," said Biroc. "If I could suggest an improved camera set-up or composition, or achieve some dramatic effect pertinent to the action, I proposed it to Mr LeRoy, and invariably he appreciated and used it. I think our successful relationship on the two pictures we have done together todate may be credited to just such cooperative working together and mutual respect for one another's talents." ■

ACADEMY AWARDS

Continued from Page 291

development of the Auto Panatar anamorphic photographic lens. This is a complete motion picture camera lens system containing both the prime and anamorphotic elements. The novel design substantially reduces photographic lateral distortion and thereby improves closeup quality and overall definition.

Certificates signifying honorable mention for Class III Awards were presented to:

Willy Borberg of the General Precision Laboratory, Inc., for the development of a high-speed intermittent movement for 35mm motion picture theatre projection equipment. Its larger shutter opening permits a greater amount of light to pass through the film, thereby increasing screen brightness. It allows better light distribution on the screen with lower flicker perception, and is a definite contribution to improved projection quality.

Fred Ponedel, George Brown and Conrad Bove of the Warner Bros. Special Effects Department for the design and fabrication of a New Rapid Fire Marble Gun.

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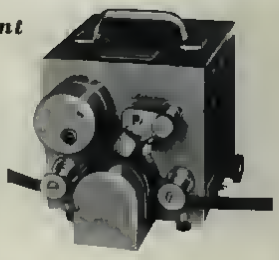

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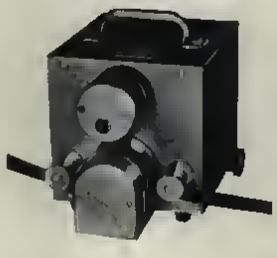

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this new gun are increased accuracy greater velocity, use of larger projectiles, and improved reliability.

As in recent years, the Academy's 31st Annual Awards event was held at the RKO Pantages theatre in Hollywood and in the customary tradition, the Oscars were handed out to the lucky winners by the cream of the crop of Hollywood stars Rock Hudson and Doris Day made the presentations for Best Photography. Actor Jon Hall, neighbor and long-time friend of Sam Leavitt accepted the Oscar for Leavitt who was on location in Michigan shooting "Anatomy of a Stranger."

Joe Ruttenberg beamed happily as he accepted his Oscar for "Gigi" from Doris Day—probably contemplating how it will look along side the other three already gracing his firepalce mantle.

Telecast from coast to coast and minus "commercials" for the second year, the show set a new mark for the Academy It was the greatest, longest, most star-studded, glamour-packed affair in the Academy's history. It didn't run quite the two full hours anticipated, but what there was of it was great—great for the industry and for everyone connected with it—*A E C.* ■

ANIMATED FILM TECHNIQUES

Continued from Page 309

motional film for TV that was produced for one-fourth the cost of full animation. The problem involved selling six basic advantages of the small college town: 1. More social life and activities. 2. Closer relationship with classmates and faculty. 3 Simpler transportation accommodations. 4. Less trouble finding work 5. Greater college spirit. And 6, more friends because everybody knows everybody else.

The studio palnned the animation sequence and it was approved by the sponsor. Essentially, the work was done with silhouettes. Cutouts were used to show students getting out of bed, in class, at field meetings, track meets and many other activities representative of a typical day's routine. A clock appeared in every scene and the hands jumped one hour for each changed situation (See Fig. 2).

This film could have been live or could have been done with full animation at much greater expense but it is doubtful if the message would have had any more impact on the audience than was obtained with the less costly animation method. Cost of live photography would have been high since it would have involved many expensive set-ups around the campus. In contrast, the camera work and art needed to handle the job on a modern animation stand were relatively simple.

Cutouts, which are actually drawings on pieces of paper, replace countless inked and painted cels needed for full animation Cutouts also save shooting time for the cameraman and permit more detailed rendition of characters With cutouts, faces can be airbrushed, hair can be glamorized, cross hatching and stippled effects can be added to clothing, fur and other special materials can be attached where ever desired Not only that—new arms, legs and heads can be substituted at will. Almost any action can be portrayed with cutouts so long as motion is side to side and up and down on planes perpendicular to the camera lens axis.

Similar effects and economies are demanded and obtained in business films One recent production of this kind was made for a large textile mill and was designed to show details of the company's promotion and merchandising program The mill insisted that costs be minimized by reducing the number of cels and drawings

In this instance, the maximum number of effects were obtained with camera movements. Zooms, vertical, horizontal and diagonal pans, pop-ons, cels sliding in all directions, and various combinations of these techniques were employed. Drawings were made larger than normal and were designed to be interesting from all camera fields. This greatly reduced the amount of artwork that would be required normally.

The musical score was added after the camera work was completed. This method proved to be most economical and permitted many special effects to be introduced. As the camera panned the countryside, the music was light and airy. When the camera zoomed in for a closeup, the music built up. When the camera receded, the music softened Thus, it was easy to select and time the musical accompaniment to fit and dramatize the camera movements.

Many startling and pleasing 3-dimensional effects are easily obtained on motorized animation stands by placing the art on several different planes. Here, as many as six surfaces are used, some supported above the compound table on wood and others on glass. Two recent 60-second films illustrate this technique. One advertised face powder and the other was an opening title for a live TV show.

The face powder job involved a lady's compact revolving in space with highlights bouncing off the surface as it turned. Using several planes, the task was simple. The compact was supported on a revolving panel of clear glass 7 inches above the table on which a sunburst background was mounted.

In making the live TV show title, a very interesting depth effect was introduced. It was simple in form yet accommodated 80 credits which were superimposed continuously during the 60-second interval, using zooms and pans. The multiple-plane technique also made it possible for the TV sponsor to make certain changes in the title to suit other shows of the series which followed.

Now that we have discussed low-cost animation techniques that are currently used in modern studios, let's take a look at the equipment that makes it possible to apply these new methods. Fig. 3 shows a large professional-type Oxberry animation stand that requires a 10' x 10' floor space and 12' ceiling clearance. The integrated components of this unit make it possible to closely coordinate the functions of stand, camera, stop-motion motor and compound table. This achieves precision and speed in production for maximum flexibility in most studio operations.

The camera carriage can be operated manually or by motor and its position is indicated on a mechanical counter in hundredths of an inch. Cams, activating linkage and interchangeable lens barrels provide for automatic follow focus. Shadow boards

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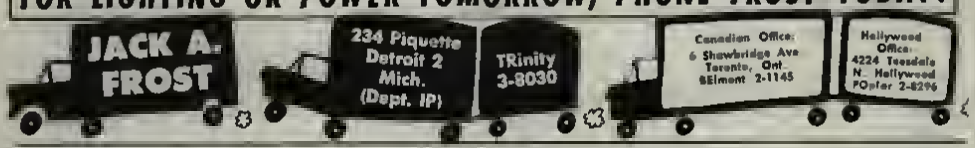

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are designed in two forms; one is suitable for multiple plane work and special effects such as wipes, ripple dissolves and similar tasks.

The camera has interchangeable shuttles, sprocket assemblies, lenses and magazines to permit use of 35mm or 16mm film. Three types of lens mounts include: 1. Automatic focus. 2. Calibrated hand focus. 3. Bellows for working from infinity to 1:1.

Other features include rack-over design, superimposure viewing device, reticle gauge with aperture markings, straight-through-the-lens sighting, automatic take-up, automatic and hand dissolves, projection and rotoscope feature, and multiple-speed stop-motion motor.

Animation compound provides a complete selection of movements; north-south, east-west, and rotating — with manual or electrical control. Design provides for pantographs, up to six peg tracks, platens and floating roll-away platen attachment. All movements are ball bearing and are controlled with hand cranks having locks and counters which read in 100ths of an inch. For pencil tests, color work

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and special effects, a section at the center of the compound is removed to accomodate underneath lighting.

Fig. 4 shows a low-cost Oxberry animation stand that fits the pocketbook of educational and business organizations. It is precision-built and incorporates electric zoom, underlighting, toplighting, and a compound having east-west, north-south and rotating movements. The stand requires 6' x 6' floor space and 8' ceiling clearance. It accommodates all standard 16mm and 35mm cameras and stop-motion motors and zooms can be made from 3 to 12 field with an Ektar 25mm lens for 16mm film. An adaptor 15mm lens is used for larger fields. Zoom counter reads in 100ths of an inch. Four other counters read 100ths of an inch and accurately register north-south, east-west and peg track movements. Compound rotates 360 degrees and is calibrated for easy positioning.

Fig. 5 shows a 3-hole progressive punch which has two locating pegs. By using this precision-built unit, the operator is assured that all cels and drawings will fit the pegs on the compound accurately. Fig. 6 shows a drawing board with glass center. It is mounted over a 16⅜ in. hole in the drawing table to accomodate lighting from below. There are two moving peg bars with locks, one above and one below the field. Two sets of pegs come with the board. Moving peg bars allow this unit to be used as a limited planning board.

Modern animation stands and compounds are designed with integrated components in order to provide exceptional flexibility and superior results. Such interlocked, precision-built mechanisms have made it possible for animation studios to handle an increasing load of work and at the same time provide economy, accuracy and speed needed for today's market. Each component of the complete machine helps to extend the latitude of the operator in planning and executing animated films.

MITCHELL CAMERA

Continued from Page 295

with a brush or stream of compressed air prior to each loading.

To mount the magazine on either the NC or BNC camera, a six-inch loop of film is pulled out of the magazine. With the camera door open, this loop is dropped down through the opening provided for it. The magazine is then moved into place and secured with the hold-down screw.

In the March issue there are two views of the open BNC camera on page 175, one of which is again reproduced here as a means of reference in following the description below of the film threading procedure. The photo shows the pattern of the negative film properly threaded in the camera, with the various film moving components identified.

Before the threading operation is started on a cold camera it is advisable first to start the motor and allow the camera to run for several minutes. This allows both the motor and the camera mechanism to warm up to operating temperature, insuring that they will be operating at the proper and constant speed when the first take is made.

With the film threaded in the camera and the door closed, ready for photography, the next step is to set the frame and footage counters to zero. These differ with the two cameras. On the NC model, there is a dial footage counter and a separate frame and footage counter at the back of the camera, in plain view of the operator. The dial counter records the amount of film used from the magazine and has a reset knob in the center. The Veeder-type frame and footage counter is to the left of the dial counter and has four small windows three of which indicate footage. The fourth registers the number of frames and is calibrated in increments of one to a maximum of 16 — there being 16 frames to one foot of 35mm film. The frame counter does not reset to zero with the footage counter. This is an advantage when doing double exposure work where it is necessary to backwind the film to a pre-determined frame for the subsequent exposure. The single-frame counter reverses itself in the film back-winding operation.

The BNC Mitchell has similar counters for footage and frames. The dial counter of the NC is omitted and

Arriflex 16 Now Features Buckle Switch

THE ARRIFLEX 16mm camera has been further improved by the addition of an automatic buckle switch, a new sprocket roller guide, and a motor cable safety catch, according to announcement of Kling Photo Corporation, New York U. S. distributor for Arri products.

The automatic buckle switch, located in the film path near the lower loop, shuts off the camera motor in case of a film jam, and at the end of each film. The buckle switch is reset automatically when the film is placed through the sprocket rollers. The automatic cut-off is particularly important when the camera is used in a sound blimp.

The new sprocket roller guide assembly makes film loading easier and faster than before. The motor cable catch lock automatically engages and locks the power supply cord to the camera plug-in receptacle. Thus, accidental pullout and unintentional disconnection is eliminated.

The camera's new features will be demonstrated at the Kling Photo exhibit at the forthcoming SMPTE Convention in Miami, Florida, May 4th to 8th.

NEW IMPROVEMENTS in the Arriflex 16 are indicated by three arrows. Taking them from left to right, 1st arrow points to new sprocket roller guide assembly. Arrow immediately below indicates new automatic buckle switch. Arrow at far right points to motor cable catch lock which secures power cable against accidental disconnect.

instead a footage totalizer is used. Both counters are mounted inside the camera box—the totalizer above the focusing tube and the footage counter below it, with the reset knobs accessible only when the camera door is opened.

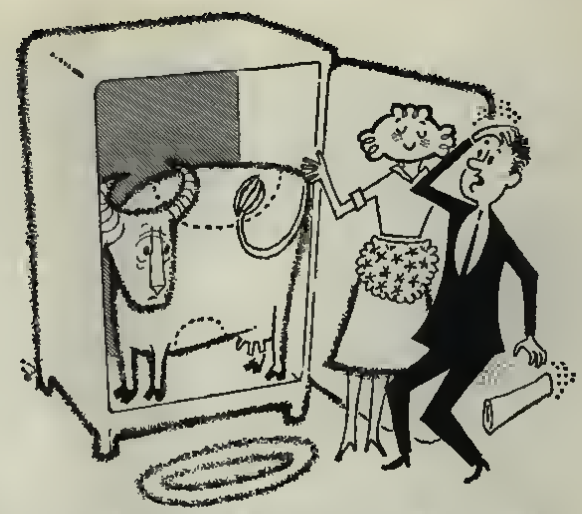
One of the salient features of the Mitchell camera is the focusing tube which, after the camera is racked over, permits viewing and focusing the scene directly through the taking lens. After focusing is completed, the camera must be racked back to operable position, as it cannot be operated in the rack-over position. This is a safety check against the possibility of the operator forgetting to rack the camera back to shooting position after viewing and focusing.

Another innovation are the two viewing filters which are built into the focusing tube for the purpose of enabling the cameraman to observe tone values in the scene as they relate to the type of film being used. The filters—one for use with panchromatic film and the other for ortho—may be quickly flipped in and out of viewing position by means of buttons located next to the focusing eyepiece. Actually, these filters are little used today by Hollywood's professional cameramen who prefer to use the more convenient viewing glass which they invariably wear suspended from a cord around the neck.

The variable shutter is an important element in any motion picture camera designed for professional work, and is a notable feature of both the NC and the BNC Mitchell cameras, as well as other Mitchell models. Fully open, the Mitchell variable shutter has an opening of 175°. This may be varied from the maximum to fully closed position, while the camera is operating or when still, and the shutter may be locked in any position at 10° increments by means of the hand dissolve lever at the back of the camera.

With the BNC Mitchell, dissolves can be produced automatically as well as by manual control simply by pushing buttons located on the back of the camera near the hand dissolve lever.

One of the differentiating features of Mitchell cameras is the manner in which the lenses are mounted. On the NC model, lenses are mounted on a rotary turret; in the BNC, a single lens is accommodated at a time and there is no turret. Only NC camera lenses have focus lockscrews. BNC lenses are locked



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in place by the gearing that focuses the lens, and focusing is achieved remotely by manipulation of focusing knobs at the rear and left side of the camera.

Lenses for use on either model camera are mounted in conventional threaded focusing mounts having iris diaphragm control rings. On the NC model, lenses are mounted in the turret with four machine screws. So that the barrel of a long focal length lens will not intrude in the field of a wide-angle lens, the 152mm is usually mounted directly opposite the 25mm, whenever both of these lenses are to be used on the camera. Another feature of the NC is that it has mechanical provision for rising and falling front effects, but this requires complicated adjustments, is limited to use of lenses of 35mm and longer, and was originally designed as a means of achieving correction in scenes having prominent vertical lines, as in heavy architectural exteriors, etc. Today, cinematographers have found faster and simpler means of achieving this.

After lenses are mounted on either the NC or BNC, they are adjusted for correct focus by means of the focusing tube of the camera, previously mentioned. The footage dial on the lens can be used for focusing, providing the exact distance to the subject is known. On the NC camera footage is calculated from the ground glass to the object. With the BNC model, distance measurements start from the tape hook which is located on the upper left hand corner of the camera. The lens footage dial lock-screw should be tightened after each adjustment. Also, after using either the 25mm or 30mm lens on the NC, these lenses must be unscrewed a sufficient distance before rotation of the turret is attempted, otherwise turret may be forced and misaligned.

With the Mitchell camera thus prepared for use, the chief operational steps consist briefly of (1) racking over the camera, (2) checking focus through the focusing tube; (2) racking the camera back to operating position; (3) setting lens f/-stop; (4) composing scene in view finder; (5) resetting footage counter to zero; (6) starting the camera to photograph the scene; (7) stopping the camera at the end of scene, and, when necessary, (8) open camera door to check and clean gate and pressure plate—especially after a lengthy run.

Like a fine automobile, long and trouble-free operation of a Mitchell camera over a long period of time is dependent mainly on keeping the mechanism free of dust, dirt or other foreign material. Care and vigilance on the part of the operator is essential, since small particles of dust in the movement or on the lens may cause scratches or spots on film that is otherwise properly exposed. ■

CHOOSING AND USING LENSES

Continued from Page 297

planes closer together and generally tend to destroy any three-dimensional quality that the scene may possess.

It is a photographic fallacy that wide-angle lenses create distortion. This is not true. Any lens will distort the image if improperly used. Distortion results from shooting from a wrong viewpoint thus creating poor perspective—not by anything inherent in the lens. The wide-angle lens is more likely to record a distorted picture when used too close to the subject. Often the very distortion that is considered a liability can be turned into a useful asset. The wide-angle lens is ideal for capturing a forceful perspective — a strong, exaggerated perspective, with a heavy base or forground and a rapidly diminishing vanishing point. This technique can be used in low angle, wide-angle shots for added dramatic impact. By placing the camera low, and shooting up at a three-quarter angle to the subject — shooting "angle on angle" — the subject is made to stand out strongly against a dropped horizon.

For example, let us take a western picture in which the hero is filmed against a cloudy sky as he draws and fires his six-shooter. A low angle, wide-angle, three-quarter angle camera set-up will etch him dramatically against the clouded sky as he looms up in the frame with his gun seemingly sticking out into space directly over the head of the viewer. It is for scenes such as this that the wide-angle lens excels because of the forceful perspective, the excellent three-dimensional modeling and the intimate feeling of participation that the audience receives.

The terrific variation in size between near and far objects when filmed with a wide-angle lens exists because the camera is usually placed close to the near person or object—making it loom larger in relation to the more distant images which are greatly reduced in size. This technique can be useful in speeding up moving vehicles or animals. A speeding auto, for instance, moving directly toward the camera and filmed with a wide-angle lens from a low three-quarter angle, will produce the impression of greater than normal speed. The car will approach from a speck in the distance, become larger and higher in the frame as its long sleek lines zoom by. The wide-angle lens creates the impression that the car is further away than it actually is, because its size will be small in relation to the frame area. The car will appear to cover a greater distance than it actually does, because the shorter the focal length, the greater the linear distance between objects. The moving image, because of the wide field of view, will remain in the frame for a greater length of time. All this adds up to "stretching" distance and increasing image speed—a professional cinematographer's technique that is most effective in filming action.

Hollywood directors of photography invariably choose a wide-angle lens to film miniature trick shots involving scaled down sets. For such scenes the camera is positioned at the eye-level of a similarly scaled observer. Such careful choice of lens and camera angle results in utmost realism and allows miniatures to be "cut in" with live action without detection. Filmed with a normal or telephoto lens the miniature would have a phoney appearance—like looking at a toy through a telescope from a distance. Only a wide-angle objective can place the viewer where he must look up and feel "surrounded" by the set and the action.

Newsreel men switch to the wide-angle lens when working outdoors at crowded public events, and also when they must work shoulder to shoulder with still photographers, as when filming celebrities, etc. Since the still photographers invariably "move in," they thus decide the "camera line," and the newsreel cameramen thus have no alternative except to use the shorter lens. The wide-angle lens is also the prime lens of newsreel cameraman filming "grab shots" or when shooting guess-focus hand-held shots on the fly. The

wide angle's inherently greater depth of field, even wide open under adverse conditions, covers focusing errors and makes it a natural for hurried shooting when little time is available for careful focus deliberation.

The wide-angle is especially valuable under poor lighting conditions, indoors or out, when a large aperture is necessary and maximum depth of field desirable. Even when used wide open, the wide angle objective (particularly the modern wide-angle retro-focus lenses) possesses extraordinary depth of field.

Wide-angle lenses can minimize the effort of camera weave or unsteadiness because their great angular covering spreads the jiggle over a wider area, thus making it less apparent on the screen. They are especially useful when the camera must be hand-held or for making dolly shots under improvised set-ups where absolutely smooth dolly travel cannot be obtained.

The rugged spaciousness of mountainous scenery is best recorded with a wide-angle lens used close, rather than with a telephoto from a distance. The shorter optic will preserve the roundness, ruggedness, texture and general uneven appearance of the terrain, particularly if cross-lighted, because of the stronger separation of images and planes. This effect can be enhanced by choosing a strong foreground, with a shadow base and a framing tree branch and then having a pictorially interesting middle ground—one that contains some variation in the terrain, trees, rocks or other objects. These will stand out as distinct planes, with the mountains rising up behind them. Add a nice clouded sky, place the action in between and a perfect outdoor action-scene having three-dimensional quality will result.

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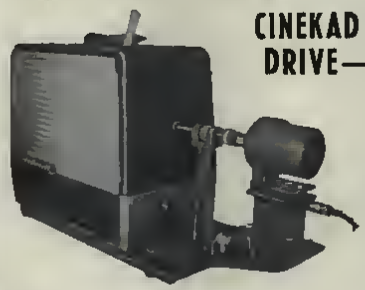

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vantages, too. Never use a wide-angle for closeups of people unless a weirdly distorted caricature is desired! The lens' terrific tendency toward foreshortening will be at its worst on closeup faces. Noses loom large, while the ears and back of the head drop off alarmingly. They are fine for comedy or shock effects, but don't use the wide-angles for serious closeup filming. Be careful when panning indoors with this lens: the rapidly changing, foreshortened perspective created will cause walls to appear to "tumble" as the camera swings in its pan movement. On panning on outdoor buildings linear distortion will be particularly distressing at the sides of the frame. Such shots should be filmed from a fixed position. So, remember that in such cases it is always best to shoot from an angle, never head-on, particularly on establishing long shots depicting buildings, streets, rooms, etc.

Scenes having predominant verticals, on the other hand, should be shot with the camera set at a height that will allow it to record the scene without tilting. This usually results in a slightly higher camera angle on interiors filmed with a wide angle lens. If converging verticals, such as room corners, or sides of tall buildings, are desired, panning should be avoided. All of these rules may be broken, of course, especially when some peculiar effect, such as a trick shot or montage or dream sequence calls for distortion, revolving or tumbling images that must be presented in an eerie or unnatural way. ■

INDUSTRY NEWS

Continued from Page 265

ment of Jack Clink as Director of Sound Services. Clink has been active in the sound field for the past 25 years. He was originally associated with the Sound Department of Metro-Goldwyn-Mayer studios. As head of Byron Sound Services, Clink will manage the largest and most complete 16mm Westrex sound system installation in the United States.

• • •

A new CinemaScope lens that will eliminate the distortion in closeups which has been labeled "anamorphic mumps," is reportedly under development by Twentieth Century-Fox engineers in conjunction with the optical firm of Bausch & Lomb.

PHOTOGRAPHIC ASSIGNMENTS

Continued from Page 262

JOSEPH LASHELLE, ASC, "Career" (Hal Wallis Prod.) with Dean Martin and Shirley MacLaine. Joseph Anthony, director.

REPUBLIC STUDIOS

MACK STENGLER, ASC, "Leave it to Beaver"* (Gomalco Prods.) with Barbara Billingsley and Hugh Beaumont. Norman Tokar, director.

BENJAMIN KLINE, ASC, "Wagon Train"* (Revue Prods.) with Ward Bond.

ELLIS THACKERY, ASC, "Restless Gun"* (Window Glen Prods.) with John Payne; "Wells Fargo"* (Overland Prods.) with Dale Robertson.

RAY RENNAHAN, ASC, "Buckskin"* (Revue Prods.).

JOHN RUSSELL, ASC, JOHN WARREN, ASC, "Alfred Hitchcock Presents"* (Revue Prods.)

RAY RENNAHAN, ASC, JOHN RUSSELL, ASC, "S. A. 7" (Revue Prods.)

JOHN RUSSELL, ASC JOHN WARREN, ASC, "General Electric Theatre"* (Revue Prods.)

LIONEL LINDON, ASC, WILLIAM SICKNER, ASC, "Schlitz-Lux Playhouse"* (Revue Prods.)

EDWARD COLMAN, ASC, "The D A Man"* (Mark VII Ltd.) with John Compton; "Pete Kelly's Blues"* (Mark VII Ltd.) with Wm Reynolds and Connie Boswell. Jack Webb, director.

WILLIAM WHITLEY, ASC, WILLIAM SICKNER, ASC "Mickey Spillane's Mike Hammer"* (Revue Prods.).

MICHAEL NERRIA, "Markhara series"* (Revue Prods.) starring Ray Milland. Ray Milland, director.

JOHN RUSSELL, ASC, WILLIAM SICKNER, ASC, "State Troopers"* (Revue Prods.) with Rod Cameron.

REVUE STUDIOS

KENNETH PEACH, ASC, "Steve Canyon"* (Pegasus Prods.) with Dean Fredericks. Don Taylor, director.

ELLSWORTH FREDRICKS, ASC, LIONEL LINDON, ASC, "The Deputy"* (Pilot, Revue Prods.).

PHILIP LATHROP, "Peter Gunn"* (Sparta Prods.) with Craig Stevens.

ELLSWORTH FREDRICKS, ASC, "Johnny Midnight"* (Pilot, Revue Prods.) Robert Stevens, director.

RKO GOWER

ROBERT PITTACK, ASC, "Ann Sothern Show"* (Desilu Prods.) with Ann Sothern.

GEORGE CLEMENS, ASC, "The Millionaire"* (Don Fedderson Prods.).

HENRY CRONJAGER, "Whirlybirds"* (Desilu Prods.) with Kenneth Tobey and Craig Hill. Robert Alton, director.

NICK MUSURACA, ASC, "Barbara Stanwyck Theatre"* (Desilu Prods.) with Barbara Stanwyck. Robert Florey, director.

RKO PATHE

LOTHROP WORTH, ASC, "The Real McCoy's"* (Brennan-Westgate Prods.) with Walter Brennan. Hy Averback, director.

PAUL IVANO, "The Texan"* (Desilu Prods.)

HAL ROACH STUDIOS

EDWARD FITZGERALD, ASC, "The Gale Storm Show"* with Gale Storm and ZaSu Pitts. William Seiter, director.

TWENTIETH CENTURY-FOX

BRYDON BAKER, "The Return of the Fly" (Associated Producers) with Vincent Price and David Frankham. Edward Bernds, director.

FRANK REDMAN, ASC, "The Perry Mason Show"* with Raymond Burr.
LLOYD AHERN, ASC, "The Third Man"* with Michael Rennie.

LEO TOVER, ASC, "Blue Denim" (C'Scope) with Macdonald Carey and Carol Lynley. Philip Dunne, director.

FLOYD CROSBY, ASC, "The Miracle of the Hills" (Associated Producers) with Rex Reason and Theona Bryant. Paul Landres, director.

CHARLES CLARKE, ASC, "A Private's Affair" (C'Scope & Color) with Christine Carere and Sal Mineo. Raoul Walsh, director.

JOE MACDONALD, ASC, "The Cave"* (Pilot) Joseph Parker, director.

UNIVERSAL-INTERNATIONAL

ARTHUR ARLING, ASC, "Any Way the Wind Blows" (C'Scope & Color, Arwin Prod.) with Rock Hudson and Doris Day. Michael Gordon, director.

ROSSELL HARLAN, ASC, "Operation Petticoat" (Granart Prod., shooting in Keywest, Fla.) with Cary Grant and Tony Curtis. Blake Edwards, director.

RUSSELL METTY, ASC, "Spartacus" (Technirama, Bryna Prods.) with Kirk Douglas and Laurence Olivier. Anthony Mann, director.

WARNER BROS.

MARK DAVIS, ASC Commercials*

ARTHUR FEINDEL, ASC, Commercials*.

HARRY STRADLING, ASC, "A Summer Place" (Technicolor, shooting at Monterey) with Richard Egan and Dorothy McGuire. Delmer Daves, director.

EDWIN DUPAR, ASC, WESLEY ANDERSON, "Sugarfoot"* with Will Hutchins.

PERRY FINNERMAN, "Maverick"* with Jack Kelley.

J PEVERRELL MARLEY, ASC, HAROLD STINE, ASC, WESLEY ANDERSON, "Lawman"* with John Russell.

EDWIN DUPAR, ASC, "Bronko"* with Ty Hardin. Allan Crosland, director.

HAL MOHR, ASC, Commercials*

JAMES DROUGHT, Commercials*

LUCIEN BALLARD ASC, "The Bramble Bush" (United States Picts.) with Richard Burton and Barbara Rush. Delmer Petrie, director.

HAROLD STINE, ASC, PERRY FINNERMAN, 'Cheyenne"* with Clint Walker.

CARL BERGER, ASC, WESLEY ANDERSON, EDWIN DUPAR ASC, "77 Sunset Strip"* with Efrem Zimbalist, Jr.

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